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ABSTRACT

The Hawaii English Project (HEP) was established to redefine the basic English program in Hawaii schools. Planning teams used a systems approach to solve the problems of language instruction. Instructional designs and materials were produced and tested on students. Analysis of variance was performed on test results. Conclusions are: (1) the HEP curriculum has been tested with a sufficiently representative sample of elementary school children and teachers that the findings can be generalized for elementary schools throughout the state; (2) The program has been commended by the principals of participating schools, visitors to experimental classrooms, and professionals in several educational fields. (CK)

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HAWAII ENGLISH PROJECT

ANNUAL EVALUATION REPORT 1969-1970

TE 002 392

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ANNUAL EVALUATION REPORT OF THE HAWAII ENGLISH PROJECT FOR 1969-1970

by

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Hawaii English Project Evaluation Staff

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ANNUAL EVALUATION REPORT OF THE

HAWAII ENGLISH PROJECT

FOR 1969-70

Foreword

This report is written for Hawaii English Project staff, participating teachers and administrators, members of the Board of Education and the Department of Education, State legislators, the U.S. Office of Education, and other interested educators and laymen. It contains a descriptive overview of the Hawaii English curriculum and a review of the evaluation of pilot and field tests conducted during the 1969-1970 school year. Since the report is for lay people as well as professionals, it is in the form of a narrative summary. Details about testing procedures, analysis of the data, reliability of the measures used, and samples of instruments may be requested from the evaluation staff.

The design of the evaluation and the collection and analysis of data were done by the evaluation staff of the Hawaii English Project under the direction of Thomas R. Owens. Members of the evaluation staff are employees of the University of Hawaii assigned to the Hawaii English Project. We have worked closely with the curriculum developers while remaining organizationally separate from them. This arrangement has provided a good mix of detachment and involvement, permitting us to be objective in the assessment and at the same time to be familiar enough with the project's objectives and operations to collect data useful for making revisions in the curriculum itself.

Preparation of this report required the help of many people. Special thanks are due to Norma Carr and Marilyn Goldberg for their evaluation assistance during the year; to Ken Brewer, a VISTA volunteer, and twelve parents serving as part-time data collectors at Kalihi-Uka and Makaha schools; to Edith Kleinjans for editorial help; to Joy McLarty and Kim Yap for data analysis; to David Chang and Ann Uehara for scoring tests and tabulating data; to Jean Holz for writing the computer program for storing and processing our data; and to Pat Zakahi for typing.

I. SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

I. CONCLUSIONS AND RECOMMENDATIONS

The Hawaii English Project (HEP) curriculum has been under development since 1967. The materials have gone through several testing and revision cycles over the past three years. Formal evaluation of classroom trials has now been sufficiently comprehensive to yield certain conclusions about the program and its parts and to provide a basis for a set of recommendations for the future.

GENERAL CONCLUSIONS

1. The HEP curriculum has been tested with a sufficiently representative sample of elementary school children and teachers in Hawaii that the findings can be generalized for elementary schools throughout the state.

   The program was field- or pilot-taught in all districts of the state's school system during 1969-70. Twelve schools, enrolling children from a wide range of socioeconomic levels, types of communities, and ethnic backgrounds, were involved in the trials. Ninety-one teachers and 1,913 students participated in the Language Skills Subprogram, 29 teachers and 652 students in the Literature Subprogram, and 24 teachers and 681 students in the Language Systems Subprogram.

2. The HEP program has been commended by the principals of participating schools, by visitors to experimental classrooms, and by professionals in several fields of education.

   Some principals cited a decline in "discipline problems" and a rise in the number of early readers which they attributed to the children's involvement in the program. Some 2,000 persons--over half of them teachers--visited project classrooms during the year. Of 294 visitors who completed a post-observation questionnaire, 282 expressed a "favorable" response. Individualization of the curriculum and the variety and ready availability of the learning materials were cited most often as the program's major assets. Outside experts commented specifically on the curriculum's individualizing provisions and on its apparent effectiveness with deprived children.

CONCLUSIONS PERTAINING TO THE LANGUAGE SKILLS SUBPROGRAM

1. The teachers participating in the classroom trials of the Language Skills Subprogram during 1969-70 are a valid cross-section of elementary teachers throughout the state. It is therefore reasonable to project similar competences and responses as the program expands and more and more teachers are trained to use the Language Skills curriculum in their classrooms.

Of 91 teachers taking part in the trials, all had the B.A. degree, 52 had earned a professional certificate, and ten a master's degree. There were 15 first-year teachers, 24 who had taught from two to five years and 24 who had taught six to ten years; 20 had 11 to 15 years of experience; four had over 16 years. Of the 91 in the group, 75 had attended a project-sponsored teacher training institute of at least a week's duration before teaching the program.

2. The cost of equipping a classroom for the Language Skills Subprogram is relatively high, but it can be reduced by more efficient arrangements for children's use of the materials.

   The estimated cost of the K-3 Language Skills installation package is $3,000 for a self-contained classroom. The life of equipment and materials averages four years, yielding an annual cost of about $25.00 per pupil. In a three-on-two classroom, the pro-rated annual cost drops to about $16.00 per pupil.

3. Children in Language Skills classrooms largely bore out the curriculum planners' expectations of how they would spend their time during the language arts period. Evaluation findings support the claims made for the individualization of the skills curriculum.

   The time breakdown are as follows: independent activities, 40 percent; interaction with one other child (for example, in peer tutoring), 20 percent; small group activities, 10 percent; working with the teacher, 5 percent; total class activity, under 2 percent. Children averaged 20 to 25 percent of their time in activities unrelated to the skills program; of this time less than half was spent in "non-productive" activities. Comparisons with findings from other studies show that 75 percent is a remarkably large proportion of time for primary children to spend on learning activities.

4. The children's distribution of their time among the content areas during the two-hour language arts period is generally consistent with the distribution pattern in more highly structured language arts programs with the exception of typewriting, which is rarely a part of these programs.

   The time distribution averages by content area were as follows: reading, 35 percent; handwriting, 25 percent; listening/speaking, 15 percent; typewriting, 5 percent; extraneous activities, 25 percent.

5. The number of pieces of equipment provided per classroom appears adequate to support the skills program with the exception of typewriters.

   Language Masters, cassette recorders, and film loop projectors were in use 40 to 50 percent of the language arts period at the field school where use rates were examined. Typewriters were in use about 80 percent of the time; some children had to wait to use them.

6. The numbers of repairs required on equipment varied widely among schools, but the range was considered acceptable by specialists on the media staff of the project.

Each school kept a record of repairs on pieces of equipment by type and brand name. For at least some classrooms, the amount of repairs was cut down substantially by giving the children careful instruction in the use and care of the equipment. The resource teacher s skillful use of screwdrivers did much to save on outside repairs at some schools.

7. "Slow" and "fast" learners distributed their time among content areas in a roughly similar pattern except that the slower ones tended to spend less time in reading and more in "non-productive" activities. It was found that teachers were spending slightly more time with fast students than with slow ones.

   In one field school, "slow" learners averaged eight minutes less a day in reading and 19 more minutes in activities unrelated to language arts. "Fast" students were getting on the average five minutes more a day of time alone with the teacher.

8. Teachers were spending their classroom time in a distribution pattern consistent with the program's philosophy and guidelines.

   In one field school monitored, about half of the teachers' time was spent working with individual children and less than 10 percent in total class activity. The class activity time was taken up chiefly with planning circles (when children told which component they had selected to work on) and evaluation circles (when everyone discussed what had been accomplished during the period). Teachers spent about 55 percent of their time working with children in reading, 15 percent of handwriting, 10 percent in listening/speaking, and 5 percent in typewriting.

9. Classroom management practices varied widely, but most teachers observed were responding well to the needs of individual children and permitting them considerable freedom to select curriculum components to work on. The program was being used as intended in over 90 percent of the classrooms observed.

   Each of the Language Skills classrooms was observed one or more times during the year. In some schools, children engaged in Language Skills activities only during the two-hour block of time allotted to language arts. In other schools they were free to use the materials at any time during the school day. In some three-on-two classes, each teacher supervised all children in one content area of the program (such as handwriting) while other teachers took care of other areas. In other three-on-two classes no boundary lines were drawn to determine which teachers worked with which students or content areas.

10. With few exceptions, the teacher's role supported the individualization of instruction.

    Very few teachers were observed to push a certain content area, to dwell on children's errors and neglect their successes, or to inhibit their free selection of components to work on. Most of the teachers showed a dramatic change in classroom behavior. Instead of telling the entire class what was to be learned, they were encouraging individual students to learn on

their own from the materials and from other children. The availability of a wide variety of materials and the arrangement of the classroom into "learning centers" did much to support individualized instruction.

11. Student performance on criterion-based measures in the program met or exceeded the planners' expectations in 31 of 36 cases.

The planners projected student performance on criterion-based measures in reading, handwriting, listening/speaking, and typewriting. In each case projections were for 5, 50, and 95 percent of all children in kindergarten, first, and second grades. Of the 36 projections, nine were exceeded by over 10 percent, 22 were met, and five fell short by 10 percent or more.

12. In some areas, IIEP children are not only making greater progress than non-IIEP children but are moving faster than children in the program the prior school year.

Last year 60 percent of the Field-school kindergarten children had read over 60 words by the end of the year; this year the same percentage had read over 120 words. Last year 46 percent of the first-graders had read over ten books. This year 51 percent had read over ten books, and 47 percent of the second-graders had read over fifty books.

13. There was a wide variation in the amount of time children took to complete given skills components. The spread is evidence that the program is accommodating children's learning rates as part of the individualized instructional approach.

Components that some children took over 80 days to complete were finished by other children in one day. At least four of the components monitored took over 30 days on the average to complete.

14. No significant gain was found for either Field- or Pilot-school children between the end of the first and fourth quarters on the eight self-directed learning behaviors as rated by teachers quarterly over the school year.

This finding is inconclusive. The teachers' records may reflect the actual failure of many children to grow in self-direction after the first quarter. Or they may reflect inadequacies in the measuring scale or gradual inflation of the teachers' expectations.

15. Second-grade children in the IIEP program at Kalihi-Uka and Shafter schools this year scored higher on the California Reading Test (CRT) than second graders not in the program last year. On the other hand, children in the four schools on Molokai scored lower this year than second-graders the prior year.

The ambiguity of these findings can only be speculated about. It is the evaluator's judgment that the CRT (administered by the DOE as part of the statewide testing program) is not a valid measure for children in the Language Skills Subprogram because it stresses many objectives not aimed for in the K-2 Skills program. On Molokai there is some evidence that the shift to the three-on-two pattern temporarily disoriented some teachers.

16. When second-graders in the HEP Skills program at one Field school were compared with children in a control group at another school, the HEP group scored slightly (but not significantly) higher on 12 out of 17 language skills measures and significantly higher on an applied measure of self-directed learning capacity.

Some of the skills measures on which the HEP children scored higher showed a substantial difference in group means, but the differences failed to prove statistically significant because of the wide variation of scores within each group and the small size of the student sample. Since self-direction is one of the objectives of the HEP skills program, the positive showing of the HEP children on this measure was gratifying.

17. Children in the HEP program with below-average IQs or in the lower socio-economic level scored significantly higher in reading than their non-HEP counterparts. These findings support the hypothesis that the HEP program is particularly effective with children lacking the usual pre-requisites to "success" in school--the group that educators in Hawaii have been particularly eager to help.

When California Reading Test (CRT) scores for HEP and non-HEP second-graders were correlated with mental age and socioeconomic status measures, it was found that children in HEP classes who had below-average mental-age scores on the California Test of Mental Maturity (CTMM) or were in the lower half of the socioeconomic spectrum outperformed their equivalents in the non-HEP comparison group. There was no significant difference between the scores of HEP and non-HEP children in the upper halves of the two groups.

18. Teachers participating in the classroom trials were pleased with the processes and outcomes of the Language Skills Subprogram.

On an unsigned questionnaire returned by 78 of the 91 participating teachers, 91 percent indicated that, given a choice, they would elect to teach the HEP curriculum rather than some other language arts curriculum. The responses also indicated that experience in using the Skills program has had some spinoff in the teachers' style of instruction in other subjects: 89 percent of the teachers said that they are teaching other subjects differently as a consequence of their experience with the HEP program. Most indicated their belief that students are making greater progress in language skills and in acquiring a positive self-concept through use of the HEP Skills program than they do through other language arts programs.

CONCLUSIONS PERTAINING TO THE LITERATURE SUBPROGRAM

1. Students expressed enjoyment of the literature selections and follow-up activities.

Results of a student inventory revealed that students in the HEP Literature Subprogram had a positive attitude toward literature and that the selections studied in class were well-liked by over two-thirds of the children.

2. Teacher support for the HEP Literature Subprogram has been enthusiastic.

After using the HEP materials for some time, the teachers showed a perceptible change in attitude from apprehension over their lack of academic experience in literature to increased confidence and enthusiasm. They attributed the change to the specificity of the lesson plans and to their own and their students' delight with the books and activities. All teachers without exception, when given the choice, expressed interest in continuing the program next year. Many teachers not initially involved in the program borrowed components for use in their own classrooms because of the enthusiasm generated by their colleagues and the children who had experienced them.

CONCLUSIONS PERTAINING TO THE LANGUAGE SYSTEMS SUBPROGRAM

1. Teachers are excited by the Language Systems materials. They have provided many suggestions for improving the curriculum, many of which are being incorporated into the revisions.

Teacher feedback reports are replete with adjectives like stimulating, interesting, innovative, enjoyable, and creative. Since the Language Systems program is a totally new program, suggestions from teachers for introducing concepts and procedures, clarifying directions to students, organizing the materials, and revising the manual have been very helpful to the planners.

2. Although the evidence is still highly tentative, indications are that children of low socioeconomic status have about as much chance of succeeding in the Language Systems Subprogram as children of higher socioeconomic status.

Analysis showed that students' scores on a test on "Neptunian" (an invented language) correlated highly with their reading and IQ scores, moderately with their study of a foreign language, and scarcely at all with their socio-economic ranking.

RECOMMENDATIONS

1. At the present time, funds have been approved for the development and implementation of the K-6 phase of the projected K-12 curriculum. Funds should now be appropriated for the development of the curriculum for these higher grades.

2. Previous experience with the production of the Language Skills materials for widespread implementation has shown that additional revisions are sometimes required after design specifications have been developed. As a consequence, procedures need to be developed, and funds provided, for a small-scale evaluation of the curriculum during the next five years so that minor revisions or additions in the program can continue to be made.

3. The cost of the HEP materials is relatively high. Innovative approaches to scheduling student use of materials and equipment, such as the experimental Learning Center concept at Waiakea Elementary School, need to be further developed and tested. Other considerations, such as the sharing of specific segments of materials or equipment, should also be explored.

4. Evidence on the effectiveness of the three-on-two classroom grouping, as compared with the self-contained grouping, has not been conclusive. New alternatives in team teaching and the creative use of teacher aides should be investigated.

5. The evaluation of the HEP program over the past four years has been generally favorable, particularly with disadvantaged children. In light of this, consideration should now be given to testing the curriculum in other states and with children of various other minority groups. Considerable federal funds can be saved through the modification of the HEP curriculum rather than to develop completely new materials.

6. One study in the evaluation of HEP indicated that teachers tended to provide more individualized help to children identified as "fast" learners than to children identified as "slow" learners. The study also indicated that some teachers tended to point out student deficiencies rather than positive accomplishments. Participating teachers need to provide an equal or greater amount of individualized help to the children identified as "slow" learners and stress the positive aspects of the learning situation.

II. OVERVIEW OF THE HAWAII ENGLISH PROJECT (HEP)

II. OVERVIEW OF THE HAWAII ENGLISH PROJECT (HEP)

A. DESCRIPTION OF THE HAWAII ENGLISH PROJECT

1. A Brief History of the English Project

The Hawaii English Project was established in May of 1966 as the major development project of the Hawaii Curriculum Center, a newly-established joint activity of the Department of Education and the University of Hawaii. The project was the result of a widely recognized need to redefine the basic program of English for the schools of Hawaii in the light of contemporary knowledge and a clearly enunciated statement of educational purpose for the schools. The Curriculum Survey of 1965, a major review of academic programs in the public schools, had revealed serious inadequacies in the language arts program of the State. The survey findings, evaluated in the light of new scholarship in the field of English, modern theories of learning and instruction, and emerging curricula from national study centers, led to the decision to design an English curriculum specifically for Hawaii. The charge to the English Project was to develop a tested curriculum and to plan for its dissemination to the schools. The target date of Fall, 1971, was set for the completion of the project, with materials to be made school-ready within two years following completion of the development phase.

The English Project planning teams undertook to provide some solutions for the persistent problems of language instruction by way of a systems approach. They were charged with accounting for the following aspects in a program designed for maximum language growth for all children and youth in the schools:

a. The State's policy that man's capacity for language (for utilitarian, aesthetic, and educational purposes) be enchanced to the fullest degree.

b. A clear definition of the field of English, including the language itself, its use in speaking and writing, and its creative shaping into literature.

c. A carefully-sequenced plan for a curriculum in which new knowledge builds upon what has gone before and repetition is reduced.

d. A set of learning materials for students so designed that each child's individuality is respected to the highest degree possible and his individual progress is not inhibited.

e. Guide for teachers using the materials.

f. Classroom equipment and organizational arrangements to be used with the materials.

g. Evaluation instruments for assessing students' progress and monitoring their school experience, including reporting to parents.

h. A teacher training program and suggested materials for the program.

i. A plan for the installation of the program in the schools, including cost factors, training schedules, and other administrative plans.

The principal activity of the project has been the production and testing of instructional designs and materials. In addition the Project has been conducting a number of collateral activities, among them a) the training of supervisors, coordinators, resource teachers, and classroom teachers; b) the demonstration, testing, and evaluation of published programs which might be incorporated into the Project's curriculum; c) the design of new university course offerings in language and literature; d) participation in reconstituting the University's pre-service program for teachers of English; e) consultation services to the schools; and f) participation in the Department's planning, programming, and budgeting (PPB) for the statewide English program.

2. Policy Change

A major policy change occurring in 1968 altered the direction and scope of the English Project. With the Board of Education urging an accelerated rate of installation in the schools, present plans call for completion of a K-3 "package" for installation in September, 1970, and a K-6 curriculum by September of the following year. Although segments of the secondary curriculum have been developed and tested, work on this half of the program has been halted until installation of the K-6 curriculum is under way. At present a fairly complete K-2 Skills sequence and major parts of a K-3 Literature and 4-6 Language Systems sequence are in various stages of testing in eleven schools around the State and the University Laboratory School.

3. Emphases in the Hawaii English Program

The English curriculum approaching completion is in many ways a distinct departure from existing programs, local and national. It is theoretically coherent; it is simpler and more economical in structure and organization than the existing program; it is integrated to the extent of reducing or erasing some of the conventional divisions of this area of study, yet on the other hand it is discrete in maintaining the integrity of each separate area; it is modern in content and approaches, introducing whole new substantive concerns through inquiry and problem-solving methods which are not characteristic of traditional programs. The planning teams tried to consider the nature of a sound curriculum in language and literature in the larger perspective of what a good elementary and secondary education should be for the 70's; of what is the true professional role of the teacher; of the kinds of learning environments and instructional strategies that would accommodate individual differences and pass the initiative for learning to the child. The result is a curriculum having the following characteristics:

a. A serious effort to deliver on the promise of individualized instruction for all children through a range of learning tools, activities, and organizational and management arrangements. Built into the programs are numerous opportunities for student self-choice, self-direction, self-instruction, and self-evaluation. Teachers using the Hawaii English Program train children to work for the most part independently, in an environment laid out to permit choices from an array of materials and activities, and with arrangements that provide for immediate responses to the decisions that the child makes.

b. An attempt to be precise about instructional objectives and to build evaluation of these objectives into educational materials. These are most apparent in the goals and criterion levels for achievement built into the Language Skills materials, but they are present as well in the Literature and Language Systems programs.

c. An attempt to systematize the benefits of peer tutoring for both the student tutors and the student learners. Within each classroom a child who has successfully completed a particular Language Skills component as a learner is given the opportunity to tutor another child in that component.

d. An attempt to emphasize inductive and discovery approaches to learning, on the premise that the extraordinary learning powers of the young are best released and enchanced when they learn from their own attempts.

e. A move toward activity-centered learning in the form of games, simulations, creative drama, improvisations, related art activities, writing, and other "making" activities. These are devised not merely as motivational devices -- the instructional goals are built into the activity.

f. A move away from the single textbook mode toward greater use of non-text modes of educational presentation. Books are still an important part of the curriculum, but the conventional, pervasive reliance on the single book has been replaced by a wider use of multi-modal presentation to accommodate the different learning styles of children.

g. An attempt to stimulate a real appetite and style for innovation and experimentation on the part of students through the encouragement of pluralistic responses to questions raised in the curriculum. Conjecture, speculation, tentative answers, alternatives, open-endedness, even ambiguity are encouraged.

h. A definite movement to fully professionalize the role of the teacher and reduce the more mechanical and redundant functions he fulfills. The teacher is less the single source of knowledge and direction and more the catalyst, consultant, diagnostician, guide, and exemplar, or model, for the student's learning.

i. A shift to effective early education and decreasing reliance on remedial instruction. This shift is reflected in a bottom-heavy

curriculum and a parallel cost pyramid which provides a wealth of materials at the primary grade level.

4. The English Program and Its Goals

The Curriculum Survey of 1965 defined English as "the study and use of the English language." It made a distinction between the subject matter of the language itself and its literature on the one hand, and, on the other hand, the arts and skills of using the language -- speaking, listening, reading, and writing. The survey report noted the following courses subsumed under the program: the required language arts instruction in the elementary schools, the required English and reading courses in grades 7-12, and the elective courses in creative and expository writing, literature, developmental and remedial reading, speech, newswriting, and yearbook.

A more recent document, the English PPB for Fiscal Year 1970, defines English as "the study of literature and language, and the development of the skills of listening, speaking, reading, and writing." These four skill areas and language and literature are identified as the six elements of the English program.

The Hawaii English Program definition of English is generally compatible with these definitions. However, it does attempt to establish what is English and what is not English more clearly than has been done in the past, and it sharpens the focus for instruction by simplifying the structure and organization of this field of study.

The Hawaii English Program defines English as a program of studies consisting of two major areas, language and literature. It engages students in the study of the English language in three different ways: 1) with the acquisition of proficiency in communication skills; 2) with the study of the nature and structure of the language itself, English in particular and language in general; and 3) with the artistic uses of language in literature drawn from worldwide sources.

Language, the most fundamental area of study, is concerned with a form of behavior peculiar to the human species. Man is unique because he can make and use symbols. The study of this distinctively human behavior is approached in two broad ways:

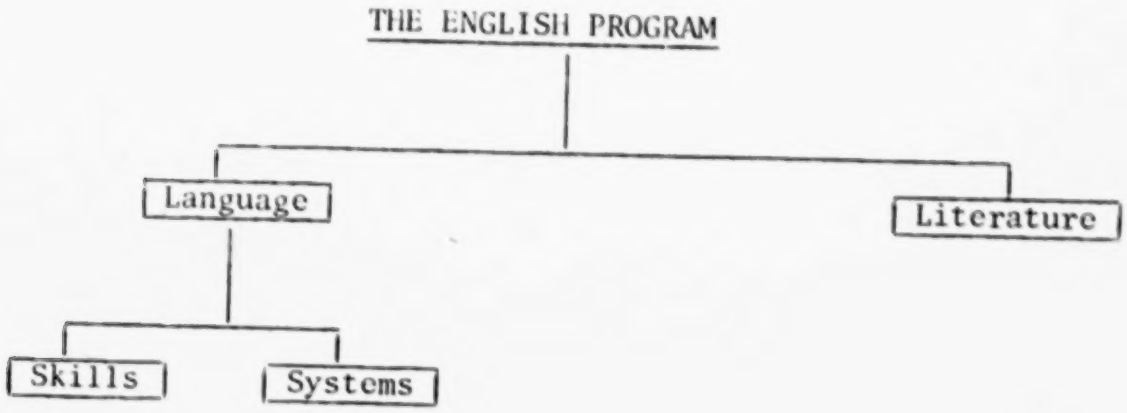
a. A Language Skills Program to help the student toward progressively greater synthesized control of his language performance.

b. A Language Systems Program to give the student some insight into the creative nature of language behavior and the grammatical rules such behavior presupposes, and to provide some perspectives on the varieties of and changes in language behavior through time and across cultures and societies.

The second major area of study in the Hawaii English Program is literature, which is an artistic expression in language, oral or written, in which knowledge about man and his condition is placed in new relationships in forms which are being constantly modified to fit each unique expression.

The Literature Program aims to help the student enjoy literature and to discover his own responses to individual works, to feel and understand both the sources and the process by which he evolves as a reader and student of literature in and beyond school.

A simple diagrammatic representation of the new curriculum at the program and subprogram levels might appear as follows:



5. A Rationale for the General Program of English

The Project planning teams developed statements of rationale for the subprograms of literature and language but none for the general program of English. The charge to design a new English curriculum assumed that the development would be within the framework of the State's existing general education program and consistent with the stated goals of public education.

The Department of Education's goal statement includes the mandate: "All programs shall derive from a curriculum which must include the areas of knowledge of English, the Sciences, Mathematics, the Social Studies, the Humanities and the Practical Arts." English in the program of general education is justified as follows:

> Essential to effective participation in the affairs of our society is the individual's capacity to think and to communicate. That is, in order to engage in any human discourse and to understand and reshape his culture, the individual must come to acquire and develop the skills and knowledge which will permit him to grasp the significance of new experiences, make causal relationships, draw inferences, and create new knowledge. Since language is central to all these processes, instruction in language is the fundamental element of the entire educational process.
>
> In our society, it is through the English language that the individual communicates and it is through the literature of this language that he comes to understand himself, his society, and the world around him.

Although the planning group did not duplicate a rationale at this level, it sought a justification for its particular vision of English in three

basic needs of all children: a) the need for competence in producing and receiving language, since these skills are fundamental to thinking, to expressing oneself, to communicating, to learning both in and out of school; b) the need to know something about the nature and operating principles of language, since language is so intimately a part of the self and of culture; and c) the need to experience literature, because this is the dimension of language which is concerned with the life and world of feeling and imagination, enabling us to construct possible models of human experience and human behavior.

These justifications are elaborated upon in the descriptions of the sub-programs which follow in later sections.

6. Curriculum Areas Not Included in the English Project Development

Certain courses presently subsumed under the general program category of English were not included in the English Project development, partly because they seemed to fall outside of the Project's definition of English, partly also because their discreteness as "strands" in the curriculum tended to disappear in the new design, but more basically because of the limitations of time, manpower, and resources. Not considered for development or redevelopment were all secondary speech arts courses (Speech Improvement, Speech Fundamentals, Public Speaking, Debate, Radio and TV, Drama); the special elective courses in secondary English (Creative Writing, Expository Writing, Reading Improvement, the Novel, etc.); Honors English and Advanced Placement courses; and the "applied" courses of Newswriting and Yearbook.

Remedial reading as an independent course also was not considered, partly because of lack of time and resources, but more importantly because it was felt that remedial reading involves numerous problems of learning not confined to reading alone. Decoding skills are only a small part of a complex problem involving language, experience levels, concept development, interest and motivation, intelligence, cognitive skills, environmental deprivation, emotional maladjustments, appropriate materials -- to mention only the more conspicuous factors. It was felt, moreover, that in individualizing the teaching of reading, the new Language Skills Program would gradually reduce the incidence of crippled readers coming up through the system so that remediation would eventually cease to be a major problem. Faced with the choice of applying scarce resources to already crippled readers on the one hand, or applying them on the other hand to sound programs for beginners, the Skills team chose to emphasize effective early programs.

Special mention should be made of composition, traditionally the third member of the English tripod and one of the major program elements in the general education program. Composition is an important activity in the Hawaii English Program, but it loses its identity as a separate and distinct strand of the curriculum after the student has attained a particular level of skills. Early in the Skills Program the student learns to write cursive or manuscript and to type. Both handwriting and typewriting are treated as means of purposeful communication. When he has reached a level of legibility and fluency in writing, he begins composing simple task-oriented messages to which his peers respond.

Spelling, punctuation, capitalization, and paragraphing are considered part of the apparatus for communicating responsibly in writing. Following this stage, composition becomes one of the basic modes of inquiry in the Literature and Language Systems Programs. In the Literature Program the student learns to write creatively in various literary and practical forms: stories, poems, plays, diaries, journals, letters -- creations based on his own experiences or on his reading. He also writes about literature and his responses to it, so that composition, with the precision it demands, becomes a means for the student to explore the sources of his response to literary works. In the Language Systems Program the student writes from a more scientific orientation his observations, discoveries, tentative conclusions, and generalizations about the language data he studies. Note-taking, record-keeping, research reports, summaries, and the like are among the technical activities and forms he uses, but he also creates advertising copy, puns, propaganda slogans, original sign systems, and writes in connection with many language games and workbook activities provided in the program. Composition is thus treated not as an end in itself but as a means by which the student can explore his subject and accomplish his purposes.

Similarly, reading as a separate vertical strand in the curriculum disappears in the new design. The Language Skills Program makes a clear distinction between decoding skills (learning speech-print correspondences at letter, word, phrase, and sentence levels); comprehension (which involves decoding but also many other factors not exclusively concerned with reading, such as intellectual skills, language and concept levels, vocabulary, maturity and experience, etc.); and the use of reading as an instrumental skill in the many uses to which reading may be put. The initial reading program, which emphasizes mastery of the decoding skills of discrimination and recognition, is designed to make the student's access to the written system as automatic as possible. Having done this as early as the student chooses, the program moves him into using his decoding skills in a variety of interesting and purposeful activities. He talks, writes, and types about what he reads. Once he has demonstrated sixth-grade proficiency in reading (and this may be reached in four years for some pupils), reading instruction per se disappears. Instead the student reads and discusses stories, poems, plays, and non-fiction which are put together in artful ways to bring out subject concerns. He reads research articles and trade books on language and communication systems as he investigates language problems of interest to him. In his reading of literature and language materials, he is taught the techniques of understanding the subject he is reading about. Thus reading is not the end of instruction but rather one means of gaining knowledge which is inseparable from the knowledge the student is seeking.

7. General Curriculum Framework for the Hawaii English Program

Certain basic curricular assumptions and action guidelines laid down for the Project staff governed the development of the program. Most fundamental were the theories of curriculum practice advanced by such theorists as King and Brownell, Bruner, Schwab, and Phenix. Research in language and linguistics, cognition, learning theory, and in the elusive area of

response to literature also influenced the design. Most important were the words of Chomsky, Piaget, Lenneburg, Ausubel, Skinner, and Purves. Numerous position papers on a curriculum theory and design for English developed from discussions based on these sources. These are available for study in the Project office.

The structuring principle for organizing the curriculum is the concept of the pupil as a novice learner, an inquirer, (and the teacher a more advanced student) within a larger community of people who practice a particular style of gaining and organizing knowledge in an area of study. The curriculum in language and literature is conceived as "a planned series of encounters" between the student and the disciplines at the most promising points of contact with key ideas, and in ways that provide a challenging entry for the young into the study. The curriculum attempts to present the disciplines of language and literature authentically and as a whole -- their information, art, and practices -- but the traditional trap of polarization between discipline-centeredness and child-centeredness has been avoided in a genuine search for challenging ways to invite children into inquiry.

Secondly, the curriculum is arranged as a continuum, an upward-moving series of goals and encounters which are neither grade- nor age-bound, nor tracked for fast, average, and slow. The various courses of the curriculum can be made to fit the conventional graded organization, however, since the modular design allows a high degree of flexibility and accommodation to different patterns of school organization. In short, the curriculum can be as flexible as the school wishes it to be.

Ideally, each student will progress up this stream of study according to his ability, rate, interest, and capacity for independent study. Ideally also such artificial barriers as grading, restrictive grouping practices and promotional policies, and ceilings on books and materials would be removed. This implies the greatest possible degree of individualization and opportunities for independent work built into the curriculum. The Hawaii English Program has achieved this to a remarkable degree, especially in the Language Program.

Finally, the curriculum is planned for all students of all ability levels, including even handicapped children whose capacity for learning is not impaired to the point where achievement through normal channels is precluded. The Project teams felt strongly that all students, regardless of ability, are entitled to experiences of search and discovery in the study of language and literature, and they have tried to ensure these experiences through materials that cover a wide range of interests, sophistication levels, and learning modes.

8. Overview of Hawaii English Program K-6

LANGUAGE

Language Skills

Individualized Programs in Communication Skills: Non-graded, largely non-text, self-instructional or peer-taught packages of materials to enable the pupil to reach grade 6 achievement levels in the shortest time possible. Skills beyond these levels are taught as part of the content areas of Language Systems and Literature.

COMPREHENSION & ORAL PRODUCTION
- Phonology (Sounds of English)
- Morphology (Derivational Forms)
- Grammar
- Lexicon (Vocabulary)
- Language Variations
- Task-Oriented Communication
- Songs

READING
- Letter & Word Discrimination
- Letter, Number, Word, Phrase, & Sentence Recognition
- Purposeful Reading
- Building Reading Rate

Language Systems

Perspectives in Communication: Sixteen self-contained, non-graded, non-sequential 3-week study units on aspects of human and animal communication systems for use in grades 4-6:

ADVERTISING

ANIMAL COMMUNICATION

BACKGROUND OF ENGLISH

DIALECTS

GESTURES

INTERNATIONAL LANGUAGES

NAMES

POPULAR SONGS

PROPAGANDA

SECRET CODES

SIGN LANGUAGES

LITERATURE

Three bands of programs from K-6, each containing 6 elements, or large groupings of overlapping units: MAKE BELIEVE, THE WORLD AROUND US, GROWING UP, THE SOCIAL ORDER, CHILLS AND THRILLS, PERCEPTION AND LANGUAGE. Each element contains 2-4 components, or study units, lasting 2-3 weeks each:

Band I (K-1)
Magic & Wonder, Fabulous Creatures
Plants & Animals, Rhythms of Nature
Rhythms of Art, Imagining Things,
Self & Family, Animal People,
Heroes & Leaders, Narrow Escapes,
Rhythms & Patterns.

Band II (2-4)
Magic & Wonder, Fabulous Creatures,
Little People, Wishful Thinking,
Rhythms of Nature, Rhythms of Art,
Rhythms of Man, Imagining Things,
Self & Family, Insights,
Animal People, Heroes & Leaders,
Reward & Punishment, Narrow Escapes,
Connotation, Demotation, Language
Games, Non-Fiction, Rhythms & Patterns,
Images & Sensory Experience.

8. Overview of Hawaii English Program K-6 (continued)

LANGUAGE

Language Skills

WRITING
- Handwriting, Cursive & Manuscript
- Spelling
- Punctuation and Capitalization
- Purposeful Writing
- Typewriting

SKILLS IN ENGLISH
- Coordinated Programs in Communication Skills

Language Systems

- SOCIAL FORMULAS
- SOUNDS
- SYMBOL SYSTEMS
- WRITING SYSTEMS
- CULMINATING UNIT

LITERATURE

Band III (5-6)

Magic & Wonder, Wishful Thinking, Bigger Than Life, Rhythms of Nature, Rhythms of Art, Rhythms of Man, Imagining Things, Insights, Life Cycles, Self & Others, Heroes & Leaders, Acquiring Wisdom, Ghost Story, Sports Story, Mystery, Heroic Deeds, Connotation, Denotation, Language Games, Non-Fiction, Rhythms & Patterns, Images & Sensory Experience.

B. NEEDS ASSESSMENT PRECEDING THE HAWAII ENGLISH PROJECT

The decision to put funds from Title III of the Elementary and Secondary Education Act into the Hawaii English Project was made by the State Board of Education only after a survey of educational needs within the State had been conducted. During the years prior to 1966, when money was first appropriated to the State for innovative and exemplary projects, there had been a great variety of studies and surveys subsumable under the rubric of "needs assessments." The overwhelming consensus emerging from these studies was that the most critical educational need throughout the State of Hawaii was to upgrade the language arts curriculum.

Information sources included the following:

1. Resolutions of annual PTA conventions
2. Recommendations from School Advisory Councils in the seven districts
3. Resolutions of annual conventions of the Hawaii Education Association
4. "Project Speak Up" (1965), a sampling of "grass roots" expectations of the schools collected in 131 neighborhood discussion groups with laymen
5. Findings of conferences of State and District staff and school administrators
6. Program budgeting documents submitted by individual schools for incorporation into District budgets and plans
7. Critical review, revision, and rewriting of curriculum and program guides by teams of schools and university personnel
8. Fact-finding studies initiated by the State Legislature
9. Collective and/or individual criticisms and recommendations by university consultants in particular subject-matter fields
10. Institutional research documents of the Department of Education
11. Studies performed by local and out-of-state consulting firms
12. Individual communications to members of the Board of Education or the Department of Education
13. A feasibility study for a regional educational laboratory in the Pacific Basin (1966)
14. Investigations conducted by the Superintendent's master planning team in preparation for the publication of the Master Plan for Public Education in Hawaii (published 1969)
15. Program Planning and Budgeting System (PPBS) documents for certain areas of the curriculum
16. The statewide minimum testing program
17. A comprehensive library planning study for the Hawaii State Library System (1968)
18. The Curriculum Survey of 1965

Of these studies, the most comprehensive and systematic was the Curriculum Survey of 1965. The Curriculum Survey Reports (1966) summarize the findings of the study. They describe in some detail public school programs in English (language arts), mathematics, science, social studies, speech, business education, agriculture, home economics, and industrial arts. The nine survey reports answer the three questions put to the Hawaii Department of Education by the Board of Education: What is being taught in our schools and for what purpose? How adequate is instruction? Are there equal opportunities for all children in the State wherever they live?

With assistance from the University of Hawaii, educational districts, and school principals and teachers, school survey teams evaluated a random selection of twenty-one schools (10 per cent of all public schools in the State) on program objectives, their relevance to the subject area, and their consistency with State aims. The survey teams visited numerous classrooms. They studied school-developed guides, lesson plans, teacher-made tests, instructional materials. They examined teacher and pupil personnel data, standardized test scores, accreditation reports, and school budget reports. They interviewed administrators, department and grade-level chairmen, teachers, and other staff members. They talked with students. What emerged from these surveys was a fairly comprehensive and reasonably accurate picture of what was going on in the public schools in these nine areas of the curriculum. As a direct result of the English survey report, the Board of Education and the Department of Education made the decision to focus development efforts on the state's curriculum and instruction in English and to give the language arts project top priority in the expenditure of Title III funds in Hawaii.

C. DESCRIPTION OF PARTICIPATING SCHOOLS

A summary description of the twelve schools participating in the Hawaii English Program is contained in Table 1. Field schools (which began with kindergarten student participation in September, 1967, and have added one grade level each year) are those where new instructional components and procedures are tried out for the first time and evaluated, before revisions are made. Pilot schools (which began with kindergarten, and first grade children in September, 1969) are those where whole instructional packages containing revised components are tested prior to final revision before they are introduced into regular installation classrooms throughout the state. The school locations, type of community, and number of students and teachers are shown in the table on the following page.

D. MAJOR ACTIVITIES DURING 1969-70

The project employs a staff of some fifty persons, including university specialists and master teachers in the field of English, writers, evaluation specialists, media technicians, production specialists, and clerical staff. During 1969-70 the staff was at work on the following tasks: 1) developing and/or revising curriculum materials; 2) training teachers and supervisory personnel through formal summer institutes, on-site demonstrations, and classroom consultations; 3) preparing specifications for the production of materials and equipment for the K-3 Installation Packages to be installed in over 200 additional classrooms during 1970-71; 4) producing prototype instructional materials; 5) preparing for the new installations and publishing a fifty-page Installation Guide for the Hawaii English Program; 6) developing teacher training materials, including training films for Language Skills and Language Systems teachers; 7) planning with the University of Hawaii's College of Education for pre-service and in-service teacher education; 8) supervising of the bidding for commercial production of the materials and coordinating production; 9) consulting with the State Department of Education's Office of Instructional Services on curriculum issues; 10) evaluating classroom trials of the materials, student performance, and the perceptions of students, teachers, and others; and 11) disseminating information about the program through school visitations, brochures, news articles, displays, and television presentations.

Table 1

DESCRIPTION OF FIELD AND PILOT SCHOOLS PARTICIPATING IN THE HAWAII ENGLISH PROGRAM

School	Field School (FS) or Pilot School (PS)	Location	Student Enrollment	Percentage of Children Receiving Public Welfare	Type of School Area	No. of Tchrs. (T) & Stud. (S) Participating in Language Skills T	S	Literature T	S	Language Systems T	S
Kahului	PS	Maui	949	2.6	Harbor community; sugar & pineapple plantations	3	91	3	81	2	59
Kalihi-Uka	FS	Honolulu	674	8.2	Residential	11	291	2	58	2	54
Kaunakakai	FS	Molokai	457	1.8	Agriculture & town area	8	150	0	0	2	66
Kapaa	PS	Kauai	1,035	12.0	Agriculture	15	311	4	85	2	77
Kilohana	FS	Molokai	116	4.3	Agriculture, ranching, fishing	4	52	2	32	0	0
Kualapuu	FS	Molokai	318	1.6	Agriculture	9	129	0	0	3	78
Makaha	PS	Leeward, Oahu	975	33.3	Beach fronts, small business; residential	13	254	2	53	2	51
Maunaloa	FS	Molokai	157	3.2	Agriculture	4	72	2	47	0	0
Puohala	PS	Windward, Oahu	884	5.1	Residential, small business	9	205	5	99	3	101
Shafter	PS	Central, Oahu	587	0	Army military post	9	236	2	51	2	72
University Laboratory	FS	Honolulu		8.0	University and business community	2	45	3	67	4	74
Waiakea	PS	Hawaii	471	11.5	Residential	4	77	4	79	2	49
					TOTALS	91	1913	29	652	24	681

III. LANGUAGE SKILLS SUBPROGRAM

III. LANGUAGE SKILLS SUBPROGRAM

A. EVALUATION DESIGN

The focus of the 1969-70 evaluation was set in periodic meetings of the HEP Evaluation Committee, a group which includes project administrators, curriculum planners, media and production personnel, an educator from outside the project, and the HEP evaluation staff. The Committee set the following priorities for the 1969-70 evaluation:

1. To provide to curriculum planners, section chiefs, and project manager the information they need for revising curriculum objectives, materials, and procedures.

2. To provide to section chiefs, the manager, and the director the information they need about materials and equipment in order to decide the types and numbers of items to include in a K-3 Installation Package.

3. To provide HEP personnel, participating classroom teachers and administrators, and the public with information about the effectiveness of the English curriculum.

There were four kinds of evaluative studies:

1. Needs assessment: review of discrepancies between existing language arts curricula and desired curricula prior to the mounting of the project, and assessment of the new program's effectiveness in achieving desired standards;

2. Formative evaluation: correction of information needed by project staff for revising curriculum objectives, procedures, and materials;

3. Research: creation of new knowledge generalizable beyond the project itself, e.g., the research project on peer tutoring funded separately by the University of Hawaii;

4. Summative evaluation: assessment of the intended and unintended outcomes of the program.

The present report focuses primarily upon the summative evaluation conducted during the 1969-70 school year.

A number of methodologies involving both quantifiable and testimonial evidence were used as part of the summative evaluation. Internal criterion-referenced measures built into the instructional system itself provide perhaps the best measure of student outcomes, since they have complete content validity and allow for measurement of parts of the program like the

typewriting program for which no valid basis of comparison exists outside the HEP. This methodology and its outcomes are described in section III. D. 1. of this report. Comparative studies involving HEP and non-HEP children were conducted using both standardized tests and criterion-referenced measures; they are described in sections III. D. 2. and 3. Perceptions of the HEP are reported in section III. D. 4. Section III. D. 5. summarizes an independent study of variables related to student success in the Language Skills Subprogram. This study was performed by a group of Volunteers in Service to America who were assigned to work with the HEP. A review of the correlational information discovered as a result of this year's evaluation is contained in section III. D. 6. In addition to these methodologies, a cost-effectiveness study of the Language Skills Subprogram is being performed by contract with Dr. Richard Burcroff of the Economics Department of the University of Hawaii. Information from that study will be available by September 1970 in a separate report.

Information was collected on student background, performance, and attitude; the perceptions of teachers, visitors and other persons were sought; the use and cost of materials and equipment were analyzed; and the project's goals and objectives were examined in relation to its actual operations. The following kinds of data were collected on each of the 1,900 participating students through the use of optical scanner sheets marked in pencil by the classroom teachers:

1. Quarterly surveys of the number and types of Language Skills components not needed, in current use, or completed by each child, and

2. Quarterly teachers' ratings of each child on eight behaviorally-stated performance objectives related to self-directed learning

These optical scanner sheets were machine-read, automatically key-punched, and recorded on magnetic tape for analysis through a specially developed computer program written in PL1 language to run on the University of Hawaii's 360/65 computer. Data were readily able for printing out by grade level, type of school (field or pilot), name of school, form of classroom organization, and child's sex.

The sub-scores and total scores were also recorded for all second-grade children on the California Reading Test and the California Test of Mental Maturity, administered as part of the statewide minimal testing program. Socioeconomic data on these children was also collected, using Hollingshead's Two-Factor Scale of Social Index.

A comparative study was conducted involving all second-grade children at one field school and a matched control school. In addition to the above information, a Self Concept and Motivation Inventory (SCAMIN), Attitude Toward School and Selected School Activities Inventory, and Self-Directed Learning Exercise were administered to each group. File data on all second graders in these two schools included their age, number of semesters in the language arts program in their school, number of days absent, and whether they were regarded by their classroom teachers as non-English speakers at the time of their entry into school. Finally, a one-third sub-sample of the field and control school second graders were selected for individually-administered performance tests in oral reading, listening, and handwriting.

A complete description of this comparative testing is found in section III. D. 3. of this report.

Evaluation studies during the year also involved the collection of detailed information on various groups of children. These types of data included:

1. The number and types of learner errors on specific curriculum materials under examination,

2. Actual classroom behaviors systematically observed during language arts periods,

3. Systematic observations and sociogram interviews of children as peer tutors,

4. Systematic observations of children using various types of classroom equipment,

5. Number of school days spent completing various components,

6. Hidden counter readings on the amount of student utilization of certain pieces of hardware such as the Language Master,

7. Time clock cards on which students in two classes recorded the time they spent working on specific curriculum components, and

8. Semi-structured weekly observations on ten high- and ten low-achieving students in the program.

In summary, the evaluation design called for the collection of minimal data on all students, maximum data on a smaller number of students, and ad hoc data for special evaluation studies. Both absolute and relative standards for judgment were employed. Student performance on internal criterion-referenced measures was judged against planner expectations specified in advance. It was also judged on two relative bases: comparison of student performances over the four quarters of the school year, and comparison of outcomes of children in the HEP program in prior years and comparison with non-HEP children.

Data concerning teachers consisted of:

1. Background data: prior teaching experience, level of formation education, and attendance at HEP teacher training institutes;

2. Attitudes toward the program in general and toward such specific aspects of it as classroom record-keeping procedures;

3. Ratings of equipment and materials;

4. Criticisms of and suggestions for improving the program; and

5. Observed classroom performance of teachers in one field and one pilot school.

Others' perceptions of the program were assessed through:

1. Interviews with many of the principals;

2. Parents' responses to a questionnaire concerning their attitudes toward the program;

3. Visitors' responses to a questionnaire about the program;

4. Recorded statements by visiting scholars and consultants; and

5. The support given the project by the State Board of Education and the State Legislature.

Data on instructional materials and equipment covered the following:

1. Cost;

2. Durability;

3. Rate of voluntary use by students;

4. Changes in utilization rates relative to changes in the number of units of equipment per class;

5. Student performance after using particular materials;

6. Frequency, cost, and types of equipment repair;

7. Length of time required for repair of equipment;

8. Laboratory testing of technical specifications; and

9. Storage and utilization space needs.

B. ENVIRONMENTAL VARIABLES

1. Student background and classroom groupings

The number of students and teachers in the Language Skills Subprogram for each of the twelve schools is shown in Table 1 on page 20. Data from last year's survey of kindergarten and first-grade children from the six field schools indicated that about 10 percent of the children were from the upper socioeconomic level, 50 percent from the middle level, and 40 percent from the lower socioeconomic level.

Students in the program were in classes having several kinds of grouping patterns. There were 32 self-contained classrooms where a single teacher worked with approximately 30 children and 23 three-on-two classrooms where three teachers worked jointly with approximately 60 children of two or three grade levels. There were ten K-1 combinations, seven K-1-2 combinations, and six 1-2 combinations within the three-on-two structure. There were similar cross-grade groupings in self-contained classrooms.

2. Teacher background

A total of 91 classroom teachers participated in the Language Skills Subprogram during 1969-70; 53 were in pilot schools where the instructional package was being used for the first time; 38 were in field schools where some materials were undergoing initial tryouts while others were being tested for the second or third year. Data showing the number of pilot and field school teachers in self-contained and three-on-two classes, the number who had attended an HEP teacher training institute, and the distribution of teachers by years of teaching experience and level of formal education are shown in Table 2.

Teachers in pilot school three-on-two classes generally ranked lower than the others on the three criteria recorded: attendance at an HEP workshop, years of experience, and amount of formal education.

Table 2

BACKGROUND DATA ON TEACHERS PARTICIPATING IN THE LANGUAGE SKILLS SUBPROGRAM

	Field Schools		Pilot Schools		
	Self-Contained	3-on-2	Self-Contained	3-on-2	Total
1. Number of teachers	15	23	17	36	91*
2. Number attending an HEP teacher training workshop	12	15	15	33	75
3. Years of teaching experience					
1 year	1	5	3	5	15
2-5 years	2	9	2	11	24
6-10 years	6	5	3	10	24
11-15 years	4	1	6	9	20
16 or more years	1	1	1	1	4
4. Highest level of formal education					
Less than BA	0	0	0	0	0
BA	1	12	3	8	24
Professional Certificate	11	8	10	23	52
MA	0	1	1	3	5
MA + 15 semester hours	2	0	1	2	5

*The remaining data are based upon records on 86 of the 91 teachers.

C. PROGRAM VARIABLES

1. Assumptions and Goals

The acquisition of language skills is stressed in the early years of schooling because effective interaction with others and effective learning in school both depend on proficiency in these skills. The Language Skills Subprogram is a performance curriculum in which the fundamental goal is synthesized language control -- the combined mastery of listening, speaking, reading, and writing skills for the purpose of communicating and learning, both in and out of school.

Several important assumptions underlie the development of the skills program. First is that language is for use in communication, and therefore any program of skills should be developed and evaluated within the context of purposeful communication. The program assumes that if the long-range purpose of a school program is the laying of groundwork for ability in effective communication, then the immediate purpose for the child should be to succeed in a communication task at his appropriate level -- a task more complex than one he has mastered before but less demanding than one he will master next. The entire program has been designed as a series of such tasks leading to the accomplishment of higher level goals for each child. Experiences in interaction aimed at achieving goals in communication are made available at a wide range of levels, but no child is required to enter any skills program unless he both needs it and can succeed in effecting the communication required.

Secondly, the skills program recognizes that children differ in interest, in styles of learning, in aptitude and rate, in thresholds for boredom, in educational needs, in need for indications of success, and in need to participate in decisions affecting their own activities. These differences imply that the route a child takes to skills development, the specific content of programs, the manner of presentation, and the speed of his progress must match as nearly as possible his specific needs, abilities, and interests. The skills program is essentially a bank of materials designed for individualized programs that will help children proceed from their individual entry levels to sixth-grade ability levels in language skills.

Thirdly, the program assumes that in an educationally useful responsive environment, the child is a decision maker. Next, someone or something in his immediate environment responds to his decisions. Such an environment may consist of a child working individually with paper and pencil, with a book, with a phonograph, with a listening headset, with a recorder and playback instrument of the reel or card type, with a film loop, and so on. On other occasions, the responsive environment may include a child and a teacher working on a program. More often it may include two students, one teaching and the other learning from his peer or near-peer. The responsive environment changes as the child's needs change. This concept of the learning environment as a series of changing environments with which the child is constantly interacting implies a departure from the classroom in the conventional sense. It calls for a specifically organized learning environment which simultaneously requires and provides for the child to make decisions as he progresses towards his goals.

A fourth assumption is that the teacher's role in such an environment changes. Observation, evaluation, guiding, and planning become more important for the teacher than lecturing, cueing, testing, correcting, and clerking. In the skills program, the essential tools are available to allow the teacher to cope effectively with the individual requirements of every child and thus fulfill her true professional role.

A final assumption involves the concept of systems. The entire Language Skills Subprogram constitutes a system in which there is a constant and dynamic interplay among the elements that make up the system: goals drawn from communication systems; outcomes described as successful behaviors in communication; pupils and teachers who play particular roles; a full bank of materials which serve as a series of cues, tests, and goals; and a learning environment organized in a particular way. Participants in the system are those pupils who have available both the full bank of materials and the specified learning environment, which includes a qualified teacher and an ungraded group of students in which one-third have always had at least two years of experience in the system, one-third have had at least one year of such experience, and no more than one-third are totally new to the system and the materials. If the integrity of the system is maintained, it is expected that certain outcomes can be predicted with a high degree of accuracy.

The overall goal of the skills program is to help each child progress from his entry level in each subprogram to the stage of independent learning in the language arts. This stage has been identified as what is generally acknowledged as sixth-grade achievement levels. Some children will reach aspects of this stage in four years or less; others may take the current average of seven years or more. The planning team feels confident that the number of students who do not currently attain these levels within seven years will be substantially reduced.

Specific goals for the skills program have been established within and across two basic areas: listening and reading skills contributing to a receptive repertory, and oral and writing skills leading to a productive repertory. The subprograms to accomplish these objectives are seen organizationally as separated strands, but in operation they are not. They are interrelated parts of a total system that will take the child toward the synthesized control which is the primary aim. Specific students goals are established and criteria set for determining when such goals have been attained. Student objectives are organized toward the goal and precise criteria are established for the attainment of the objectives so that the student will know if he is on target for the goal. For example, the child learning to write cursive small letters from film loops knows that his goal is to copy from models all 26 small letters of the alphabet sequenced in any order. He knows that he has reached his target when he can correctly copy in his practice book a series of letters in any order from models provided by his teacher.

2. General Approach

Parallel with the goals in language are some important aspects of approach. The most distinctive feature is the provision for differentiated learning and for freeing the child to assume greater responsibility for his own

learning. The materials design and the roles defined for teacher and pupil encourage independent learning, the exercise of intelligent choice of program routes, the student's tracking of his own progress.

Another important aspect of approach is the use of peer tutoring. The child participates actively in communication in the form of teaching others something that he has mastered. A sense of responsibility, purpose, and self-fulfillment are important outcomes of teaching others, but more important from a learning standpoint is the gain that accrues to the child who teaches. Helping another learn is a chance to review, but it is to review in a game-like situation and with an adult-type purpose to enhance the activity. It is also a delayed test of the tutor's learning. In the teaching-learning groups of two or three that are used in the skills program there are great potential benefits for each child as he fulfills the role of learner and again as he may fulfill the role of tutor.

Seen as a system, the entire skills program is a network of interconnected subsystems with different entry and exit points for different children. Each of the four subsystems (aural, oral, reading, writing) has its own network and flow chart, but it has interconnections with the other three subsystems as well. For example, a child failing in letter recognition in the early stages of learning to read has the option of moving to a second mode within the reading subsystem or of shifting to the typewriting program. He may learn to recognize letters on the typewriter keyboard. A child unable to handle numerals in a task-oriented communication activity in the aural-oral program may be looped back into the numeral recognition component of the reading program. In short, there are various paths of progression available to desired goals according to each child's needs, abilities, and interests.

3. Materials of the Curriculum

The program objectives are reached by the student through a variety of modes. A mode is an audio, visual, and/or tactile device for use as a technique for attainment of a learning objective. The chief modes are:

Stack mode: A series of punched cards attached by means of a rod to a base. The learning materials are programmed into the stack in a way to permit two or more children to work together. (Primarily visual)

Language Master mode: An audio card-reading device which records and/or plays back sound. (Primarily audio but also visual)

Film mode: A continuous-loop motion picture in a cartridge, with or without a sound track. (Visual)

Book mode: (Visual)

Typewriter mode: (Primarily visual, also tactile)

Paper and/or pencil mode: (Primarily visual)

Flocked card mode: A card with letters or numerals in raised or textured material. (Primarily tactile, visual)

Tape recorder mode: A tape recorder adapted for use with cassettes. (Audio)

Phonograph and disc mode: (Audio)

Game mode: Varied devices, such as lotto or playing cards, to carry out a task-oriented competitive or self-evaluative activity.

Most of the materials of the curriculum are conveniently packaged in individual containers that make for ease of handling and storage. There are a great many items in the total skills package, but the problem of management for the teacher is reduced considerably by students' assuming responsibility for proper storage after use.

A detailed instructional manual for the teacher accompanies the program. The manual explains the conceptual framework, the learning environment, the various subprograms, learner goals for each element, entry and exit behaviors, learning procedures, next steps, and record keeping.

4. Organization of the Language Skills Curriculum

The materials of the curriculum are grouped into two skills areas: skills with the oral symbols of language and skills with the graphic symbols. These areas are further sub-divided into receptive and productive aspects. The receptive aspect of skills with the oral symbols of language includes comprehension; the productive aspect includes expressive speech, song, and communication. The receptive aspect of skills with the graphic symbols of language includes reading; the productive aspect includes handwriting and typewriting with communicative purposes. These areas are related, and the subdivisions exist primarily for practical organizational purposes. See outline summary below.

DESIGN OF LANGUAGE SKILLS SUBPROGRAM

FOR K-6 ACHIEVEMENT LEVELS

SKILLS WITH ORAL SYMBOLS

Comprehension and Oral Production

Phonology
- Sounds of English
- Intonation
- Stress

Grammar
- Noun Phrase
- Verb Phrase
- Sentence Patterns & Transformations

Lexicon
- Colors & Shapes
- Derivational Affixes
- Prepositions
- Word Differences
- Multiple Meanings

Language Variations
- Dialect Variations
- Style Variations

Task-Oriented Communication
- Making Ideas Clear
- Problem-Solving Group Discussion

Songs

SKILLS WITH GRAPHIC SYMBOLS

Reading

Graphic Symbols of Discrimination
- Letters
- Words

Graphic Symbols Recognition
- Letters
- Numbers
- Words
- Phrases & Sentences

Purposeful Reading
- Language Master Books
- Taped Books
- SRA Satellite Kit
- Instructional Library
- Building Reading Rate
- Audience Reading
- Small Group Interaction

Writing

Handwriting
- Letter Discrimination
- Letter Recognition
- Cursive Writing
- Manuscript Writing

Spelling
- BRL Spelling Program

Punctuation & Capitalization

Purposeful Writing

Typewriting
- Typing Skills
- Applied Typing

SKILLS WITH ORAL & GRAPHIC SYMBOLS

Skills in English

Coordinated Programs
Using All the Skills

5. Costs of the Program

Table 3 shows the estimated cost of the K-3 Language Skills Installation package for a self-contained class of 30 children. The estimated life of the equipment is five years and that of the materials is three years, or an average of four years for the package. The initial cost per child is $100. The total cost for installing in a three-on-two classroom serving 60 children is $3,830, giving an initial per-child cost of $64 and a pro-rated annual cost of $16 per child. Annual cost for a 30-student self-contained class is $25 per child. An experiment has been designed for one of the pilot schools to organize the materials next year in a learning center serving two groups of 90 children during the day, thereby substantially reducing the per-child cost of the package while giving each child maximum use of the materials. This year a group of 90 K-2 children at Kalihi-Uka successfully shared two sets of materials during the morning language arts period.

Table 3

ESTIMATED PRODUCTION COSTS OF THE K-3 LANGUAGE SKILLS INSTALLATION PACKAGE PER SELF-CONTAINED CLASSROOM

Materials	Cost	Equipment	Cost
Reading	$ 974.05	2 Audio Card Readers	$ 500.00
Writing	439.31	12 Headphones	216.00
Listening/Speaking	146.90	1 Typewriter	180.00
Typewriting	20.41	1 Super 8mm projector	174.50
Miscellaneous	97.85	3 Cassette Recorders	144.00
TOTAL MATERIALS	$1,678.52	Miscellaneous	32.06
		TOTAL EQUIPMENT	$1,246.56
		GRAND TOTAL	$2,925.08

6. Student Activities

In order to obtain a record of the daily activities of students, four kinds of observations were conducted.

a. Individual Use of New Components

A paraprofessional data collector observed individual children working with a new component, recorded the way the child selected it, the

number and types of errors he made while using it, and the extent to which he followed the prescribed directions for its use. Data collectors completed structured observation forms for each component. Over 200 hours of observation were conducted. The analysis of the completed forms provided feedback useful to the planners in revising their components.

b. Classification of Student Time by Grouping Patterns and by Content Area

The second technique was patterned after a classroom observation system developed by C. M. Lindvall for the Individually Prescribed Instruction (IPI) Project in Pittsburgh. This system, as modified by the HEP, required data collectors to observe all the boys or all the girls in a self-contained classroom during ten consecutive two-minute intervals. Using stopwatches, they observed the children for approximately 20 seconds, recorded the number of children engaged in categories of activities listed on the observation schedule, waited until the next two-minute interval began, and repeated the process. Only the first activity observed for each child during the 20-second periods was recorded.

Table 4 shows the percentages of time children were observed to be engaged in independent activities, pupil-pupil activities (such as peer tutoring), pupil-teacher activities, small group activities (involving between 3 and 15 children), total class activity, and non-language arts activity. Comparable data from last year's observations and from IPI observations are also shown. The 1969-70 figures are based on five randomly-sampled observations for each of 11 teachers at Kalihi-Uka, ten from self-contained classes at Makaha, and ten from three-on-two classes at Makaha. Percentages shown are based upon total child-minutes observed, that is, upon the combination of number of children engaging in the activity and the number of two-minute intervals they engaged in it.

There is a high degree of consistency in the percentages recorded at Kalihi-Uka this year and last year. Likewise the amount of time spent in independent activities across the Kalihi-Uka groups is very similar. The higher percentage of pupil-pupil activity time for HEP as compared with IPI math is attributed to the peer-tutoring practice found only in the HEP curriculum. The non-project-related percentages are a good index of the degree of freedom children are given to work or not to work with project materials. The large differences between self-contained and three-on-two classes at Makaha may be due in part to the added supervision of the third teacher in a team-teaching arrangement. However, the fact that three-on-two classes had 80 percent of the K-1 children in project-related activities is remarkable considering that it was the school's first year in the program and that many of the children there are considered immature by their teachers. The figures are dramatic proof that the program is individualized in actual operation as well as in design.

Table 4

PERCENTAGE OF TIME STUDENTS SPENT
IN VARIOUS GROUPING PATTERNS

TYPE OF GROUPING PATTERN	PERCENTAGE OF TIME FOR:				
		HEP			IPI MATH
	Kalihi-Uka	Kalihi-Uka	Makaha SC	Makaha 3-on-2	
PROJECT RELATED:	1969-70	1968-69	1969-70	1969-70	1968-69
1. Independent activities	41.6	41.3	15.0	36.7	42
2. Pupil-pupil activities	22.4	19.7	18.6	15.3	4
3. Pupil-teacher activities	4.3	5.5	6.2	5.8	6
4. Small group activities	11.1	10.5	6.2	16.3	*
5. Total class activities	1.6	1.4	.7	1.7	1
NON-PROJECT RELATED	19.0	21.6	53.4	24.2	47

*This category was combined with total class activity.

The classification of student activities by content is presented in Table 5. Data were based upon approximately 120 observations made in all 11 classrooms at Kalihi-Uka school from October through December 1969. Percentages are based upon total child-minutes observed. Although more time was spent in reading than in the other language arts areas, there appears to be a good balance in the program use. The ten percent of the time shown for use of the Language Masters and cassette recorders should be divided between the reading and listening/speaking programs, since both use these modes.

Table 5

PERCENTAGE OF TIME STUDENTS SPENT IN VARIOUS CONTENT AREAS

LANGUAGE ARTS	
Reading	
Card stacks	15.02
Commercial reading books or pamphlets	10.63
Individually selected words	.61
Handwriting	
Plastic writing books	14.78
Spelling books	1.86
Film loop projector*	1.43
Flocked cards	.24
Listening/Speaking	
Record player (songs)	5.44
Language games	2.32
Dialect Markers	.72
Typing	
Use of typewriter	4.76
Unclassifiable	
Cassette tape recorders	6.76
Language Masters	3.67
Teacher-produced materials	1.61
Others	9.22
TOTAL LANGUAGE ARTS	74.07
NON-LANGUAGE ARTS	
Drawing, painting, puzzles, toys, etc.	7.41
Getting or putting away L.A. materials	4.84
Sitting quietly doing nothing	4.76
Wandering around room and/or disturbing others	3.19
Using non-language arts curriculum materials	2.96
Class discussion	1.84
Pupils leaving the room	.93
TOTAL NON-LANGUAGE ARTS	25.93

*This item was in only half the classrooms

c. Student Use of Language Masters, Cassette Recorders, Film Loop Projectors, and Typewriters

A third observation system related to the children's use of equipment during the two-hour language arts period between January and May 1970. Data collectors at Kalihi-Uka rotated days of the week, observation hours, and classrooms. They recorded the sex and grade level of the

children and the duration of time they used the two Language Masters, three cassette recorders, and one film loop projector (located in only half of the classrooms at Kalihi-Uka). The amount of time each piece of equipment was not in use during the observation period was also recorded. The Language Masters and cassette recorders were observed for 112 hours. Language Masters were used by children approximately 55 percent of the time and cassette recorders 54 percent of the time. The film loop projectors were observed for 20 hours and were in use 59 percent of the time.

An analysis of variance was run on the Language Masters and cassette recorders to determine if there was a significant difference in the amount of use by children's sex and by grade level. Table 6 presents the mean time (in minutes) that the Language Master was used. The analysis of variance indicated no significant difference by sex or grade level. Table 7 presents parallel data for the cassette recorders. Although the mean time for utilization of both Language Masters and cassette recorders was approximately 20 minutes, periods of use ranged from less than five minutes to over an hour.

Table 6

AVERAGE NUMBER OF MINUTES SPENT BY STUDENTS PER SITTING IN USING THE LANGUAGE MASTER

N=10 randomly sampled observations per cell

	Kindergarten	First Grade	Second Grade
Boy	18	17	11
Girl	13	21	21

Table 7

AVERAGE NUMBER OF MINUTES SPENT BY STUDENTS PER SITTING IN USING THE CASSETTE RECORDERS

N=14 randomly sampled observations per cell

	Kindergarten	First Grade	Second Grade
Boy	23	16	23
Girl	19	25	18

Since the amount of time children spent per sitting on the Language Master and cassette recorder did not differ significantly by sex or grade level, it can be concluded that differences in the total utilization time observed for sex and grade level must be attributed to the number of times they used the equipment during the periods of observation.

Table 8 presents by children's sex and grade level the percentage of time the Language Master, cassette recorders, and film loop projectors were in use during the total observation period. The significant decrease in use of the film loop by second-graders is due to the fact that the loops deal with the copying of numbers and letters in cursive which most second-graders have already mastered.

No analysis of variance was performed on the film loop projector data because the number of observations per cell was too small. However, the average length of time students worked with the projector per sitting was 27 minutes.

Table 8

PERCENTAGE OF TIME THAT CHILDREN USED HEP EQUIPMENT

Sex and Grade Level Grouping	Percentage of Time Used		
	Language Master	Cassette Recorders	Film Loop Projectors
Kindergarten boys	7	9	17
Kindergarten girls	6	4	11
First-grade boys	15	16	14
First-grade girls	16	8	12
Second-grade boys	2	12	2
Second-grade girls	9	5	3
Unused Time	55	54	59

A separate study was conducted on typewriter utilization when one, two, and three typewriters were available in the classroom. Data were collected using an observation form similar to the one described for the Language Masters, cassette recorders, and film loop projectors. Twenty hours of observations were systematically collected during the second semester in two classrooms over a six-week period. In room A, children had one typewriter available the first two weeks, two typewriters the second two weeks, and three typewriters the third two weeks. Classroom B had the reverse order of typewriters over the six weeks. No significant differences were found between the classroom adding typewriters and the one substracting them, so the data for the two classrooms were combined. When the number of typewriters available increased from one to two to three the percentage of time each was in use decreased only slightly from 82% to 80% to 69%. Children's use of the typewriter per sitting ranged from 5 to 90 minutes. Table 9 shows the percentage of time the typewriters were used by students when one, two, and three machines were available. In general, there was a tendency for kindergarten children to use the typewriter a larger percentage of the time as the number of typewriters increased. Regardless of the number of typewriters available, girls used them a larger percentage of the time than did the boys. Data in Table 9 provide evidence that a second or third typewriter in the classroom would probably increase the children's use of typewriting as a learning mode.

Table 9

PERCENTAGE OF TIME TYPEWRITERS WERE USED WHEN ONE, TWO, OR THREE WERE AVAILABLE IN THE CLASSROOM

Number of Typewriters Available	Percentage of Time Used By: Kindergarten Boys	Kindergarten Girls	First Grade Boys	First Grade Girls	Second Grade Boys	Second Grade Girls	Unuse Time
1	0	11.9	16.5	21.1	3.5	29.2	17.6
2	2.7	21.2	9.5	25.7	3.5	17.1	20.2
3	3.4	14.2	9.4	19.5	4.9	17.0	31.3

A study of the average length of student use of the typewriter per sitting showed that kindergarten children averaged 25 minutes while first and second graders averaged approximately 20 minutes. This was due largely to the fact that the younger children are slower in typing.

d. Use of Time by "Fast" and "Slow" Students

The fourth type of student observation focused on eight first-grade children identified by the resource teacher at Kalihi-Uka as progressing very rapidly and eight moving very slowly through the skills program. One "fast" and one "slow" student were selected in each of eight classrooms. Data collectors were given a time schedule for observing these children that randomized the day of the week and hour of observation. Each of the ten observations on each child lasted approximately two hours; the observer completed an observation record which included the child's and the observer's names, the date and time of the observation, and three columns down the page. The first column was a time column in which the observer was instructed to record the time the observation began and the time that a child shifted from one activity to another. In the second column was listed the activity the child engaged in and the third column contained behaviorally-stated descriptions of exactly what the child did during that interval of time. These completed observations were given to the curriculum planners to give them a better idea of how individual children performed with their components. The average time spent by each "fast" and "slow" child in each major area of reading, handwriting, listening/speaking, and typewriting is presented in Table 10. Shown in Table 11 are the average percentages of time spent in various grouping patterns by the "fast" and "slow" groups.

Table 10

AVERAGE TIME SPENT BY "FAST" AND "SLOW" STUDENTS IN THE HEP CONTENT AREAS

	"Fast" Students		"Slow" Students	
Content Areas	Average Number of Minutes	Range of Average Time in Minutes	Average Number of Minutes	Range of Average Time in Minutes
Reading	46	32 - 62	38	6 - 57
Handwriting	19	2 - 40	23	16 - 40
Listening/Speaking	21	8 - 28	23	12 - 33
Typewriting	7	2 - 24	6	5 - 18
Non-HEP Activities	25	10 - 36	27	17 - 42
Not Coded	2		3	

Table 11

AVERAGE TIME SPENT BY "FAST" AND "SLOW" STUDENTS IN VARIOUS GROUPING PATTERNS

Type of Grouping Pattern	Average Number of Minutes for "Fast" Students	Average Number of Minutes for "Slow" Students
Independent Activity	46	39
Pupil-Pupil Activity	19	12
Pupil-Teacher Activity	14	9
Group-Activity	9	3
Non-Productive (e.g. wandering around room, talking, doing nothing)	7	26
Not Coded	25	31

The "slow" students spent approximately the same amount of time in each content area as did the "fast" students except for reading, where the "fast" students spent an average of eight more minutes per day. In terms of grouping patterns, the "fast" group as compared with the "slow" group spent a greater amount of time in each learning pattern but significatnly less time in the non-productive category (only seven minutes versus 26 minutes.)

The findings based upon these observations seem important for several reasons. First, they indicate that the HEP Language Skills Subprogram is involving both the "fast" and "slow" child. In fact, the "slow" child tends to spend even more time than the "fast" child in handwriting and listening/speaking activities. Second, the data show that about 30 percent of the recorded time for "slow" children was spent in non-productive activities. Coupled with this is the fact that teachers seem to be spending about one-third more time working individually with "fast" children than with "slow" children. This tendency on the part of teachers needs to be reviewed with them so that individual teachers can determine if they are giving adequate attention to the "slow" child.

7. Teacher Activities

Eight HEP Language Skills teachers, six at Kalihi-Uka and two at Makaha, were observed for one-hour intervals during the language arts period by paraprofessional data collectors throughout the spring semester. The teachers' and observers' names and the date and time of the observations were recorded. Three columns were used to record the time a teacher began a new activity, the kind of activity, and a behaviorally-stated description of that activity.

A random sample of five recorded observations on each of the eight teachers were tabulated along two dimensions--organizational and content. Specifically, the number of minutes were recorded that the teacher spent in the following behaviors: 1) working with an individual child, 2) working with groups of children, 3) working with the total class, 4) observing children (but not tutoring or instructing them), and 5) other activities. A second analysis of the same observations was made in terms of the amount of time that teachers spent working with children in 1) reading, 2) handwriting, 3) listening/speaking activities, 4) typewriting, and 5) other activities.

The average time that teachers spent in the above categories is shown in percentage form in Table 12. Also shown is the range among the eight teachers. About half of the teachers' time was spent working with individual children and less than ten percent in total class activity. Most of the total class activity consisted of planning circles where the children told which components they had selected to work on, and in evaluation circles where the children and teacher discussed what had been accomplished that period. About half of the teachers' time was spent working with children in reading; relatively little time was devoted to listening/speaking or typewriting. Less teacher time was needed in these last two areas because most of these components are self-instructional,

involving the use of Language Master or an electric typewriter. The distribution of teacher time spent in these categories is highly consistent with the design of the curriculum.

Table 12

AVERAGE PERCENTAGE AND RANGE OF TIMES HEP TEACHERS SPENT IN SELECTED ACTIVITIES DURING THE LANGUAGE ARTS PERIOD

Activities	Average Percentage of Time	Range of Time (in minutes)
1. Organizational Activities		
a. Working with individual children	58.6	78.1 - 47.8
b. Working with groups of children	2.7	6.3 - 0
c. Working with the total class	6.9	14.8 - 0
d. Observing children	7.6	13.6 - 3.5
e. Other activities	24. 2	44.7 - 3.6
2. Content Activities		
a. Reading	55.8	66.0 - 34.2
b. Handwriting	15.1	24.2 - 1.4
c. Listening/Speaking	8.2	19.0 - 0
d. Typewriting	4.4	8.4 - 0
e. Other areas	16.5	55.3 - 3.7

8. Equipment Repairs

Because the HEP Language Skills curriculum uses multiple modes of learning which are an essential and costly part of the learning environment, it is necessary to examine not only the students' use of the media provided and their learning outcomes, but also the cost and durability of various types of equipment. Specific details of this type of analysis are contained in the cost-effectiveness study being prepared by Dr. Richard Burcroff. A brief overview of the performance of the equipment used with the HEP is contained in Table 13, which shows the type and brand of equipment, the

number of units in use in the schools during 1969-70, and the number of repairs reported. Data presented in this table are based upon an equipment repair record kept by the field and pilot schools and forwarded monthly to the HEP evaluation section. Additional information on the major reasons for repair, the average number of days damaged equipment was out of classroom use, and the cost of repairs can be obtained from the evaluation or media section of HEP.

Table 13

SUMMARY OF REPAIR DATA FOR EQUIPMENT USED IN THE HEP LANGUAGE SKILLS SUBPROGRAM

Type of Equipment and Brand Name	Number of Units in the HEP Classrooms	Total Number of Repairs Reported	Number of Machines Needing Repair: 1 time	2 times	3 times	4 times	5 or more times	Number of Machines Repaired	Percentage of Machines Repaired
Cassette Tape Recorders									
Toshiba KT P 20	210	181	61	22	14	6	2	105	50%
Hitachi	24	16	11	1	0	0	0	12	50%
Sony	16	2	2	0	0	0	0	2	13%
Craig	15	10	10	0	0	0	0	10	67%
Typewriters									
Smith-Corona	84	82	29	10	7	3	0	49	58%
Audio Card Readers									
Language Masters (Bell & Howell)	178	10	8	2	0	0	0	10	6%
Electronics Futures Inc. (EFI)	8	3	3	0	0	0	0	3	38%
Teaching Technology Corporation (TTC)	12	9	6	2	1	0	0	9	75%

Table 13 (continued)

SUMMARY OF REPAIR DATA FOR EQUIPMENT USED IN THE HEP LANGUAGE SKILLS SUBPROGRAM

Type of Equipment and Brand Name	Number of Units in the HEP Classrooms	Total Number of Repairs Reported	Number of Machines Needing Repair: 1 time	2 times	3 times	4 times	5 or more times	Number of Machines Repaired	Percentage of Machines Repaired
Super 8 Film Loop Projector	55	7	7	0	0	0	0	7	13%
Headphones for Cassette Tape Recorders									
PM&E	500*	50	32	5	0	0	0	37	7.4%
Superex	360	31	19	4	0	0	0	23	6.4%
Telex-Combo	180	10	8	1	0	0	0	9	5.0%
Columbia	180	11	9	1	0	0	0	10	5.5%

*estimate

Since the information reported in Table 13 was based upon only those repairs recorded by individual schools and reported to HEP, the figures are minimal. There were some schools not returning reports regularly and others where equipment repairs were performed on site and consequently not reported. The HEP media section felt that, given the heavy use by primary grade children, the number of repairs to equipment were within an acceptable level.

Only three types of equipment -- the Toshiba cassette recorder, the Smith-Corona typewriter, and the TTC audio card reader -- were found to have individual machines needing repair more than twice in the percentage of machines needing repair during the year. There was considerable variation among brands. Three factors played a part in these variations. First, for some brand names listed, equipment in use in the schools was up to three years old. This was true, for example, with the Smith-Corona typewriter. Details related to the number of repairs required for typewriters one, two, and three years old are available from the HEP typewriting curriculum specialist. Second, the EFI audio card reader was not used in the program on a regular basis during 1969-70 because special cards for it were not on hand. Third, different brands were placed in different schools. There was wide variation among schools in the percentage of machines reported as needing repair. Thus the school in which a given brand was used influences to at least some extent the number of repairs required. A more sophisticated research design which accounts for both the age of the machine and its location will be used for evaluating equipment performance for next year.

9. Summary of Formative Evaluation Studies

In addition to the evaluations described in other sections of this report which are considered to be of interest to people outside the project, a number of internal formative studies were conducted as the basis for decision-making within the HEP. The initiative for many of these studies came out of questions posed by the curriculum planners or project administrators. These formative evaluation studies are summarized in Table 14 in chart form under three columns: 1) evaluation question, 2) procedures, and 3) findings. More complete data on these areas are available upon request.

Table 14

SUMMARY OF SELECTED FORMATIVE EVALUATION STUDIES

EVALUATION QUESTION AND RELATED DECISION	PROCEDURES	FINDINGS
1. How reliable are the diagnostic tests used in the HEP? If the tests are too short to be reliable they need to be lengthened or otherwise improved.	For each of five reading components ten students from Kalihi-Uka were selected who had been diagnosed as not needing the component. A second test for each component was developed that was twice the length of the regular diagnostic test. Students in this study were tested on the longer version three weeks after the initial testing to see if their performance was still above 90% on the longer test.	Of the 50 children tested, all but two achieved at least 90% on the longer retesting, indicating that although the regular diagnostic test is short, it is reliable for determining which children do not need to enter a component.
2. How reliable are the teacher quarterly ratings of student performance on eight behaviors related to self-directed learning? Items for rating student behaviors that are low in reliability need to be revised.	Four self-contained classrooms were selected for the study from one field school where paraprofessional data collectors were employed for the year during the two-hour language arts periods to observe and collect data on a single class. At the end of the second quarter each of the four classroom teachers and four data collectors independently rated all children in their respective classrooms on the frequency with which they practiced eight self-directed learning behaviors reported on the pupil progress reports. Each behavior was rated on a three-part scale: "seldom or never", "sometimes", or "usually or always." Data collectors were also permitted to use a code for "unable to judge." Each classroom pair	The difference between teachers' and data collectors' average ratings across the eight behaviors was -.56, .51, .49, and -.07 where the negative sign indicated teachers' ratings were lower than that of the data collectors. The inter-judge reliabilities ran .67, .61, .42, and .28. A small absolute mean deviation combined with a high mean correlation per item would be the best combination. The items are shown below:

Behavior	Average Mean Deviation	Correlation
1. Works without disturbing others	.13	.59
2. Marks his own progress in his record folder	.23	.69

Table 14 (continued)

SUMMARY OF SELECTED FORMATIVE EVALUATION STUDIES

EVALUATION QUESTION AND RELATED DECISION	PROCEDURES	FINDINGS
	was treated as a separate case. Correlations between teacher and data collector ratings were computed for each item over all students. Pearson's r, deleting all cases where the data collector marked "unable to judge," was used. In addition, mean ratings for each item were computed for each judge and deviations for pairs of raters were studied.	Behavior / Average Mean Deviation / Correlation 3. Follows through on his own activities after he has selected them — .25 — .54 4. Helps other children to learn — .35 — .55 5. Goes from one activity to another without teacher direction — .51 — .49 6. Solicits help from the teacher or other students when he needs it — .61 — .34 7. Selects some of his own activities to work on — .73 — .31 8. Evaluates his own work at the end of the language arts period — .77 — .83 Suggestions were made to the planners for improving the working of the behaviors.

Table 14 (continued)

SUMMARY OF SELECTED FORMATIVE EVALUATION STUDIES

EVALUATION QUESTION AND RELATED DECISION	PROCEDURES	FINDINGS
3. Are tutors who have actually completed a component as learners more effective than tutors who were diagnosed as not needing the component and thus have not gone through it as learners? If children who have passed a diagnostic test covering a component perform as well as those having gone through the component as learners, then such children should be allowed to tutor others in that component.	One hundred and nineteen students from Kalihi-Uka who had recently completed or been diagnosed as not needing one of two listening/speaking programs participated in this study. Each child was observed while tutoring a learner. The number of sound contrasts he tutored and the number of tutor procedural errors were recorded by the data collectors.	Of the tutors observed, 41 qualified by the diagnostic test and 78 qualified by successfully completing the component as a learner. The tutor procedural errors for the first group was .54 per tutor while for the second group it was 1.68. Since tutors who qualified through the diagnostic test outperformed those who went through the component as learners, they were allowed to continue tutoring during the year.
4. How effective is the Language Skills Subprogram for non-English speaking students?	The eleven teachers at Kalihi-Uka were asked to identify students in their classroom who were non-English speakers at the time of their entry into school and who were also in the Language Skills Subprogram on or before September 1968. Their progress was checked in June 1970 in terms of level completed within the HEP reading program and relative	There were five first-grade and three second-grade children who met the criteria. One first grader had read over 250 words, two had read over 3 books one had completed 15 books, and one over 60 books. Out of 102 first-graders they ranked 8, 44, 61, 70 and 87. Of the second-grade children, one had read over 15 books, another over 70, and the third over 100. Their relative class standings in

Table 14 (continued)

SUMMARY OF SELECTED FORMATIVE EVALUATION STUDIES

EVALUATION QUESTION AND RELATED DECISION	PROCEDURES	FINDINGS
	standing among the other first-or second-grade children in that school.	reading were 6, 17, and 58 out of 86. Although the number is small, non-English speaking children who are exposed to the HEP system for at least one year are likely to make as much progress as English-speaking children in the program.
5. What is the performance level of current sixth-grade children at Kalihi-Uka on the SRAIIa Power Builders series? Sixth-grade level of achievement in reading is being operationally defined in the HEP program in ways that will allow the student to select from about five methods of demonstrating his competency. One of the ways being considered is his performance on the SRA Power Builders series which has graded materials up to the 7.0 grade-level equivalent. Information	The HEP reading planner selected nine out of fifteen booklets and tests from the SRA seventh-grade reading level as being the best measures. The 83 sixth-grade children at Kalihi-Uka were randomly assigned to take three different tests. There were between 16 and 38 students who were taking each test.	Of the 9 items on each test, the means for each test ranged between 4.50 and 6.14 and the standard deviation between 1.88 and 2.39. Inter-test correlations were low. Only 13 of a possible 36 pairs of tests correlated significantly at the .05 level of confidence, and of these only 7 pairs had correlations above .80. Appropriate cut-off scores were recommended for students who would pass two sampled tests out of five equivalent tests from one group and one out of three equivalent tests from the second group. The probability of a student passing all three tests by chance would be only 1 in 100.

Table 14 (continued)

SUMMARY OF SELECTED FORMATIVE EVALUATION STUDIES

EVALUATION QUESTION AND RELATED DECISION	PROCEDURES	FINDINGS
was needed as to how equivalent the 15 tests are and how non-HEP sixth graders score on these tests.		
6. Is there a difference in reinforcement effect from tutoring as compared with engaging in instructional group games?	A total of 30 students from six K-2 classrooms at Kalihi-Uka who had recently completed five sections of a Dialect Markers (D.M.) component (a listening/speaking program intended for local dialect-speaking children) but had not yet tutored nor played the DM games (similar to Lotto) were randomly sampled for this study. Of these 30, ten were randomly assigned to tutor the program to another child, ten to play the DM games, and ten were given other tasks in the skills program but neither tutored nor played the DM game. Treatment conditions were assigned within classrooms so as to control for the possible teacher or classroom climate effects. Procedures were implemented to assure that children engaged in only the one assigned treatment. Students were individually given a special pretest covering the sounds of the DM unit and a	The total of mean errors made on the pre-test by students engaged in games only, tutoring only, or neither was 3.6, 4.6 and 2.0 respectively while the post-test scores for these three groups were 3.5, 2.0, and 2.0. When analyzed in terms of gain score only, the group engaged in tutoring made a positive gain. They increased .6 in program words, .6 in applied words, and 1.3 in nonsense words. The games group decreased 1.3 on program words and increased .3 in applied words, and .9 in nonsense words. Although the group tutoring in this experiment gained more than those engaging in games, several limitations of the study prevented further generalization except to make the planner question whether the game selected was appropriate for the intended purpose.

Table 14 (continued)

SUMMARY OF SELECTED FORMATIVE EVALUATION STUDIES

EVALUATION QUESTION AND RELATED DECISION	PROCEDURE	FINDINGS
	parallel post-test two weeks later. The number of errors made by each child was recorded under three headings: program words, new words using the sound contrasts learned, and nonsense words using the sound contrasts learned.	
7. Are the objectives in the reading, handwriting, and typewriting programs properly sequenced in order of difficulty?	As a partial test of the hierarchy in terms of difficulty level of the tasks involved, a study was made to determine the number of children, if any, who were diagnosed as needing one component but not needing a higher level component. The records of approximately 300 K-2 children from 11 classrooms at Kalihi-Uka were examined. Five levels in the reading program were tested, three in the handwriting program, and two in the typewriting program. For example, the records were checked to determine how many children were diagnosed as needing a letter discrimination component but not needing a word discrimination, letter recognition, or word discrimination component.	The results of this study showed no children who needed a lower level component who did not need a higher level component. Several qualifications should be added, however. Some teachers may have stopped the diagnostic testing shortly beyond where they found a student needed to enter the program as a learner. Secondly, if actual learning hierarchies were tested by having some child engage in a higher level component before a lower level component different results may have been found. In general, however, the evidence strongly suggests that the components are properly sequenced.

Table 14 (continued)

SUMMARY OF SELECTED FORMATIVE EVALUATION STUDIES

EVALUATION QUESTION AND RELATED DECISION	PROCEDURES	FINDINGS
8. Language Master Utilization 1) Does the utilization rate of the Language Master (an audio card reader) change over the school year? 2) How does the utilization rate change as the number of machines in a classroom moves from one to three? 3) What variations in utilization exist from class to class and from one machine to another?	The instruments used in this experiment were hidden counters inserted into the machines to register the number of cards fed into each machine per week. Neither teachers nor students were aware that the counters were being used. A random sample of Language Skills classrooms at Kalihi-Uka and Makaha was chosen and a research design and directions given to the resource teacher and VISTA volunteer at the two schools. The design specified which classrooms were to be observed each week and the number of machines to be in each. The design was balanced so that some classrooms were adding machines each week while others were decreasing machines. Weekly counter readings were taken and the counters then set back to zero.	Weekly counter readings on 8 machines monitored each week showed an average of 524 cards used per machine per week or 1,048 per self-contained classroom. Assuming 28 students per class, children used an average of 37 cards per week. Over a period of six consecutive weeks during the first semester, the amount of classroom utilization of Language Masters varied greatly from 1,331 to 356. The average utilization for three self-contained classrooms at Makaha and Kalihi-Uka changed from 653 to 1,110 to 1,634 as the number of machines changed from one to two (the normal allotment) to three. In a three-on-two classroom, the utilization increased from 3,196 to 3,866 to 4,516 as the number of machines changed from three to four (the normal allotment) to five. The variation in utilization from one classroom to the next and from one machine to the other within the same classroom is quite large during any one week. One classroom had a utilization of 380 cards on one machine and 846 on the other. Conclusions and implications of these data were reported to project staff.
9. To what extent can the scores of second-graders on the California Reading Test and	Kalihi-Uka and Makaha, (a field and a pilot school) were selected for this study. All current sixth-grade students in each school (134 total) who had completed the sixth	Shown below are the mean and standard deviation on all variables.

Table 14 (continued)

SUMMARY OF SELECTED FORMATIVE EVALUATION STUDIES

EVALUATION QUESTION AND RELATED DECISION	PROCEDURES	FINDINGS
other tests be used to predict their success on the reading section of the sixth-grade Sequential Test of Educational Progress (STEP)? If the CRT is a good predictor of sixth-grade STEP, it may give the planners some indication of how children in the HEP program might do by the time they become sixth-graders although it is recognized that the same scores on the CRT for HEP and non-HEP students do not mean the same thing.	grade STEP reading test and had also taken the second-grade California Reading Test (CRT), and California Test of Mental Maturity (CTMM) were used. Other data collected were the children's sex and socio-economic status (SES) using Hollingshead's "Two Factor Scale of Social Index." The stepwise regression program revised June 1969 was used to give the best set of predictors of sixth-grade reading performance on the STEP test. The STEP scores are shown as converted raw scores, sex as 1 for male and 2 for female, CTMM in raw score form, SES as the raw score on a scale of 11 to 77 (with 77 as the lowest score), and CRT in percentile form, since raw scores were not recorded in one school.	

VARIABLE	MEAN	STANDARD DEVIATION
STEP	248.2	14.8
SEX	1.4	.5
CTMM	65.1	12.4
SES	50.4	23.6
CRT	44.5	21.3

The intercorrelations are:

	STEP	SEX	CTMM	SES	CRT
STEP	1.00	.32	.63	-.20	.76
SEX		1.00	.09	-.14	.30
CTMM			1.00	-.13	.69
SES				1.00	-.15
CRT					1.00

Table 14 (continued)

SUMMARY OF SELECTED FORMATIVE EVALUATION STUDIES

EVALUATION QUESTION AND RELATED DECISION	PROCEDURES	FINDINGS
		The best single predictor of sixth-grade STEP reading scores was the second-grade CRT. This correlation of .76 was increased only marginally by adding CTMM (R=.77), then sex (R=.78), and SES (R=.79). Thus CRT, which correlated .76 with STEP and had a standard error of estimate of 9.65, is a good predictor of STEP reading scores.
10. How long does it take children to complete selected Language Skills components? Since the mastery levels are established in advance for each component, the length of time children take to complete a component becomes an important variable.	Time for completion of components was defined in two ways and resulted in two different methodologies. One definition considered the actual number of minutes a child worked on a component before completing it. Two time clocks were rented on a trial basis during May for a sampled HEP classroom at the University Laboratory School and another at Kalihi-uka. Students were provided with specially printed program cards and were asked to punch in and out each time they began and ended work on a particular component. The second definition of time was the number of school days between a child's entering a component and completing it. Data were taken from the teachers' classroom records from 11 classrooms at Kalihi-Uka and four classrooms at Makaha. The	The use of a time clock for experimental purposes with primary grade children proved interesting. For the first several weeks children were artificially motivated by the use of a time clock and would start and stop work on a component three or four times an hour in order to be able to punch the time clock. Several mechanical problems were also encountered. The biggest problem, however, was that children would rather frequently forget to punch at the start or end of using a component. Therefore, over half of the cards collected were discarded and only those considered reliable were used. Estimated working time to complete various components was: RWC 1 or 2, 75 minutes; RWC 14, 15, or 16, 80 minutes; CC 2, 50 minutes; Instructional Library (per level), 150 minutes; spelling books, 150 minutes each; DM 1-5, 20 minutes; typewriting BL 2, 85 minutes.

Table 14 (continued)

SUMMARY OF SELECTED FORMATIVE EVALUATION STUDIES

EVALUATION QUESTION AND RELATED DECISION	PROCEDURES	FINDINGS
	program symbols and their meanings are: YN1 = a large letter discrimination program; YN3 = word discrimination program; BL = recognition of all large letters; RWC1 = read on sight over 30 words; RWC8 = read over 240 words; Ins.1 = read over 3 books; Ins.10 = read over 50 books; CW SL2 = a small letter cursive writing program; CW LC4 = letter connection program in cursive writing; BL = the typing of all large letters; SL2 = the typing of small letters; LDM5 = the first 5 units of a listening program for dialect-speaking children; LM1C1 = the first listening program involving performance of tasks given orally.	Based upon the second definition of completion time, the mean and range for selected language skills components are:

Component	Average Days	Range	Number of Students Monitored
READING			
1. YN-1	4	1-20	64
2. YN-3	12	1-81	94
3. BL	31	1-135	91
4. RWC-1	14	1-88	96
5. RWC-8	9	1-45	64
6. Ins. 1	22	1-99	52
7. Ins. 10	5	1-19	26
WRITING			
8. CW SL2	31	1-100	89
9. CW LC4	19	1-134	66
TYPING			
10. BL	34	3-128	68
11. SL-2	41	1-89	33
LISTENING/SPEAKING			
12. LDM 5	46	1-119	43
13. LM1C1	59	26-94	5

Table 14 (continued)

SUMMARY OF SELECTED FORMATIVE EVALUATION STUDIES

EVALUATION QUESTION AND RELATED DECISION	PROCEDURES	FINDINGS
11. Is the film loop (FL) mode, laminated book (LB) mode, or combined mode most effective in teaching kindergarten and first-grade children to copy single digit numbers and small letters? Both modes are currently being used in the program.	A two-page handwriting test booklet was prepared and administered to all kindergarten and first-grade children in nine classrooms at Kalihi-Uka. Two classrooms had been randomly sampled to have only film loops, five had only laminated writing books, and two had both modes. The test measured children's ability to copy accurately single digit numbers and small letters from a model. All numbers and letters were scored only as legible or illegible in order to provide uniformity of grading.	The average percentage of correct student respons in copying single digit numbers from a model is shown below by grade level. Grade Level / FL only / LB only / both FL and LB K / 75% / 57% / 57% 1 / 80% / 94% / 86% The average percentage of correct student respons in copying small letters from a model is: Grade Level / FL only / LB only / both FL and LB K / 32% / 31% / 24% 1 / 77% / 83% / 88% Although first-grade children performed significantly better than kindergarten children, neither mode nor the combination of modes caused significantly better performance. Teachers have testified, however, that in classes having both modes some children having difficulty with the book mode were helped by the FL mode.

D. OUTCOME VARIABLES

1. Performance on Criterion-Referenced Measures

a. Language Skills Mastered

One of the most meaningful ways of assessing an innovative individualized instructional program is to state performance objectives in behavioral terms and then measure the extent to which these objectives have been achieved. In some cases this is the only valid method of evaluation. For example, a traditional language skills curriculum does not include a typewriting component; thus comparision between experimental and control groups on this skill is meaningless. Secondly, an individualized program like the Hawaii English curriculum assumes that a child will enter a particular component only after it has been established that he needs it and is considered ready to learn it. Once he enters a certain area, such as reading, he is allowed to progress at his own rate toward higher-level objectives. Thus a wide variance of achievement is expected, which an evaluation must take into consideration. A third consideration in evaluating an individualized program is that children should only be expected to have mastery of those component levels which they have undertaken. Hence this section of the evaluation reports the successful mastery of certain behaviors for only those students who demonstrated a readiness for engaging in them.

The assessment of each component in the Skills Subprogram is built directly into the materials. A child who has covered the reading words in a particular card stack is tested by the teacher or another child tutor on the last section of cards within the stack, which includes a cumulative review of earlier cards in that stack. A child must achieve 100 percent performance on this last set before the teacher will give him credit for completing the stack and allow him to progress to the next level. Success in reading books is tested by having the learner read aloud the last pages of a book to the teacher. She then decides whether he should progress to the next book level, read more books at his current level, or reread the particular book. Specific criteria and procedures for measuring the successful completion of each component are contained in the teacher's manual.

At the end of the first semester of this school year the curriculum planners were asked to provide the evaluator with their best estimate of what percentage of children would have completed selected components in their area by the end of the school year. Estimates were obtained for each content area by grade level. Within these categories expectations were further divided into estimated outcomes for 5, 50, and 95 percent of all children in a given grade level and content area.

Information to ascertain the actual percentage of children who met each expectation was obtained from an optical scanner sheet completed quarterly by classroom teachers on all 1,900 children in the program. The scanner sheet for each child recorded his code number, school,

class, grade level, sex, and performance on 23 representative Language Skills components covering the four areas of reading, handwriting, listening/speaking, and typewriting. For each component the teacher indicated whether the child was diagnosed as not needing it (or had completed it the prior school year), needed it but had not started it, was currently working on that component, or had completed it during the 1969-70 school. A special computer program was written to analyze the data.

The curriculum planners' projections for student achievement in the IIEP Language Skills Subprogram by the end of the 1969-1970 school year are shown in Table 15. These projections were made during the second quarter of the school year. Although there is no fixed level of expectation for every child, since each is free to select his own programs and work at his own rate, certain group projections were established more as a measure of the curriculum than of the students. These projections were made in each area of content by grade level and by student range within grade level. That is, levels were selected which 5, 50, and 95 percent of the students at that grade level were expected to reach by June, 1970. These are only a selection of tasks from a total of over 100.

The figures in parentheses under each statement of learner behavior indicate the percentage of Kalihi-Uka (K), field (F), or pilot (P) school children who actually reached that level. Where no figure for P is shown, the component was not in use in pilot schools. The only exception is that second-grade pilot-school data are not shown since they represent fewer than 50 children. A brief description of each of the behavioral labels may be useful. (A more complete description of each of the over 100 components, including the goal statement, entry requirements, learning procedures, exit procedures, and next steps is contained in Volume II of the Language Skills Program Manual for Teachers.) In reading, 95 percent of the kindergarten children were projected to be able to discriminate between pairs of words by saying yes or no in response to the cue card and the question whether the two words are the same. Fifty percent of the kindergarteners were projected to be able to name on sight approximately 120 regularly patterned words when presented cards with these words on them. The remaining reading projections referred to the number of books read in the Reading Instructional Library, which contains 200 books organized into 20 graded levels. Children read the earlier level books aloud to a tutor and reread sentences they initially read incorrectly. At a higher level in the series, the learner read the whole book silently and then reads the last three pages to the teacher and tells her about what he has read. Children are usually required to read five out of the ten books at each level of difficulty.

The handwriting tasks shown in Table 15 are as follows: In task 10 the child copies in cursive form five paragraphs from books in the Reading Instructional Library. A tutor checks his work, and if errors are found the learner returns to the model and practices with tutor assistance. The learner recopies the paragraph until he completes the task without error. Task 11 requires that a child copy without error from models large and small letter combinations and words

sequenced in any order. In task 12, the learner copies without error on his practice book a series of single digit numbers in any order from models provided by the teacher. In task 13 the learner creates and writes messages or letters requiring another to perform a task. Task 14 is the same as task 12. Task 15 requires that a learner copy on his practice book without error a series of numbers and large and small letters in any order from models provided by the teacher in cursive form. Task 16 is the same as task 13. Task 17 requires the learner to copy in cursive form without error 15 messages requiring another to perform a task. Task 18 is the same as task 14.

Although the reading, handwriting, and typewriting areas are composed of learning behaviors arranged in a hierarchy of learning difficulty, the earlier programs in listening/speaking are not so arranged. Furthermore, not every classroom had the same set of components, since certain ones were still being developed, evaluated, and revised. Therefore, for uniformity of reporting data across classrooms, only the number of successfully completed components, out of a maximum of 17, are shown.

The last column records typewriting tasks. Completion of task 28 requires that the learner type large and small letters from a model with correct fingering. He is allowed no more than two typewritten errors per line on the last lesson, which he must complete within ten minutes. In task 29 the learner types the first 17 lessons in the big letter unit from a model with correct fingering. Task 30 requires that the learner make all machine adjustments taught in the Type Check Book satisfactorily within ten minutes and have begun to type upper-case letters. Task 31 requires the learner to operate correctly the left and right shift keys and to type upper and lower case combinations in sentences and paragraphs. The learner must type the last lesson in the unit with correct fingering and no more than two errors per line within ten minutes. Task 32 is the same as 28. Task 33 requires that the learner have completed all 52 lessons in the big letter unit. He must type the last lesson with correct fingering and no more than two errors per line within ten minutes. Task 34, 35 and 36 require the learner to have completed task 31 and then to type selections from the book of his choice. Tasks 34 to 36 simply differ in the number of correctly typed pages the child has completed.

Table 15

PROJECTED AND ACTUAL LEARNING OUTCOMES FOR KINDERGARTEN, FIRST-, AND SECOND-GRADE STUDENTS IN THE HEP LANGUAGE SKILLS SUBPROGRAM BY JUNE 1970

	Performance projected for students at the:	READING	WRITING	LISTENING/ SPEAKING*	TYPING
KINDERGARTEN	Top 5% of their grade level	1. Read over 10 books (F22, P8)	10. Copy a paragraph from a reader accurately in cursive form (F5, P20)	19. Successfully complete five components (F53)	28. Type large and small letters from a model with correct fingering (F27, P21)
	50%	2. Read over 100 words (F59, P44)	11. Copy words accurately (F43, P22)	20. Successfully complete three components (F82)	29. Type 17 lessons in the big letter unit from a model with correct fingering (F50, P35)
TEN	Bottom 5% of their grade level	3. Discriminate between words (F99, P96)	12. Copy numbers 1 to 10 accurately (F82, P64)	21. Successfully complete one component (F91)	30. Type the initial exercises in the first typing program (F85, P55)
FIRST GRADE	Top 5%	4. Read over 40 books (F29, P10)	13. Write original sentences (F2)	22. Successfully complete ten components (F62)	31. Type upper and lower case combinations in sentences and paragraphs using the left and right shift keys (F11, P3)
	50%	5. Read over 10 books (F51, P19)	14. Copy 4-word sentences accurately (cursive to cursive) (F52, P39)	23. Successfully complete six components (F74)	32. Type large and small letters from a model with correct fingering (F82, P25)

Table 15 (continued)

PROJECTED AND ACTUAL LEARNING OUTCOMES FOR KINDERGARTEN, FIRST-, AND SECOND-GRADE STUDENTS IN THE HEP LANGUAGE SKILLS SUBPROGRAM BY JUNE 1970

	Performance projected for students at the:	READING	WRITING	LISTENING/ SPEAKING*	TYPING
FIRST	Bottom 5%	6. Read over 30 words (F91, P76)	15. Copy numbers, large and small letters accurately in cursive form (F87, P59)	24. Successfully complete two components (F88)	33. Type the large letters accurately and start to type small letters (F66, P23)
SECOND GRADE	Top 5%	7. Read over 100 books (F25)	16. Write a message or letter requiring another to perform a task (F7)	25. Successfully complete twelve components (F74)	34. Type 10 pages from a reader (F10)
	50%	8. Read over 50 books (F47)	17. Copy accurately from models messages requiring another to perform a task (F21)	26. Successfully complete eight components (F81)	35. Type 5 pages from a reader (F12)
	Bottom 5%	9. Read over 3 books (F81)	18. Copy individual words accurately in cursive (F89)	27. Successfully complete four components (F98)	36. Type at least one page from a reader (F16)

*Applicable only to field schools since only one listening/speaking program is in the pilot schools this year. Since the earlier listening/speaking components are not arranged in a specific hierarchy, children have the option of engaging in various components without any prescribed sequence among components.
F=percentage of field school children completing or not needing the task; P=percentage of pilot school children completing or not needing the task

Table 15 shows that there were nine cases where actual performance exceeded projections for both field schools and pilot schools (when appropriate) by more than ten percent and five cases where the performance for both groups (where appropriate) was more than ten percent below the projection. In general the planners underestimated the fast achievers' performance and overestimated performance for slow achievers. The rapid pace of the fast achievers often caused the planners some extra pressure in developing and producing higher level programs rapidly enough to match the children's pace. Forming projections in the listening/speaking area was particularly difficult because of the variation in time required to complete different components. The second-grade projections in typing were too homogeneous, making insufficient allowance for an existing spread.

Other comparisons of student performance on these criterion measures can also be made. Last year 60 percent of the field-school kindergarten children had read over 60 words while this year 59 percent had read over 100 words (actually closer to 120 words). Whereas 46 percent of the first grade field school children had read over ten books, this year 51 percent of the first graders in the same schools had read over ten books, and 47 percent of the second graders had read over 50 books.

The number of books read at Kalihi-Uka by first graders during each of the last three years has been recorded and serves as a useful measure of the program's impact. Table 16 displays the data for non-HEP children in 1968 and HEP children for 1969 and 1970. While no first graders had read more than 20 books in 1968, 28 HEP first graders exceeded that number last year and 35 exceeded it this year. These data are evidence that the HEP program is significantly more effective than existing reading programs and that its second year of use was more successful than the first.

Table 16

COMPARISON OF THE NUMBER OF BOOKS READ BY HEP AND NON-HEP FIRST GRADE CHILDREN IN 1968, 1969, AND 1970 AT KALIHI-UKA

Number of Books Read	Number of Students Reading at Least This Number of Books		
	1968 Non-HEP	1969 HEP	1970 HEP
0 (or less than 60 word reading level)	3	1	4
1 (or between 60 and 150 word reading level)	11	9	3
2 (or between 150 and 330 word reading level)	6	3	8
3 (or between 330 and 540 word reading level)	12	20	8
4 (or more than 540 word reading level)	8	5	19
5-9	46	9	5
10-14	8	12	9
15-19	0	10	8
20-24	0	9	9
25-29	0	3	8
30-34	0	1	4
35-49	0	14	2
50-99	0	0	8
100 or more	0	0	4
	N = 94	N = 96	N = 99

b. Time Required to Complete Components

In addition to knowing the percentages of children by grade level who have completed key components in the HEP Language Skills Subprogram by the end of the year, it is also important to know how long it took children at various grade levels to complete these components. Table 17 is based upon students from eight classrooms at Kalihi-Uka and two classrooms at Makaha School. Data were obtained from teachers' roll books which showed the entrance and exit date of each child in each Language Skills component. These data were converted by evaluation assistants into number of school days per child per component. This information was keypunched and computer analyzed to give the mean and standard deviation for each component. Table 17 reports data by grade level for components that were recorded for at least five or more children per grade level.

Interpretation of this data is complicated by several factors. First, children in the HEP program are free to work or not to work on selected components. Thus a child may have begun a component on Monday and then chosen not to work on it again until Thursday. Second, the number of minutes that children work on a component varies among children, days of the year, and nature of the component. Thus one child may complete a component in one day by working on it for 50 minutes while another takes ten days working on it only five minutes per day. Third, children have a variety of components that they may choose to work on simultaneously so that one child may take twice as long as another to complete a component because he chose to work on three other components during the same hour. In order to get a more accurate measure of the number of minutes a child actually spends in completing a component, time clocks with specially prepared cards were pilot-tested. However, these were not tried until May, and the data were not considered sufficiently reliable or generalizable for reporting purposes. Ten to twenty minutes was found to be an average period that children worked on a particular component.

Although the limitations cited in the above paragraph affect the data shown in Table 17, the information is still important in the real world of the classroom to describe what actually occurred and what is likely to happen in the coming year. For each component in Table 17 the number (N) of kindergarten (K), first- (1) and second- (2) grade children for whom data were recorded are presented. Next to each N is shown the mean (M) or average number of school days used to complete the component and the standard deviation (S.D.) which indicates the amount of variation in the time individual children took to complete the tasks. A more detailed analysis of the data indicates a significant difference by sex in time taken to complete certain components. For example, 35 kindergarten boys averaged 15.0 days to complete the word discrimination component but 28 kindergarten girls averaged only 8.9 days to complete it.

Examinations of the data in Table 17 prompts certain recommendations. In last year's evaluation report, it was recommended that components N2, 3, and 4 (which teach children to read the numbers from 30 to 120) be deleted. The basis for this recommendation was that such training

was not directly related to the higher reading objectives and more logically belonged in the mathematics curriculum. These components were deleted, leaving only N1, which teaches the numbers 1 to 29. In light of the fact that kindergarten children are averaging 38 school days and first-grade children 32 school days to learn these numbers during the language arts period, methods should be found to reduce the time children are spending on this activity. This could be done by stressing only the numbers from 1 to 9, finding a more efficient method of teaching numbers, or sending children to that component only when they encounter a reading task which requires the ability to read numbers.

For those components requiring more than six weeks to complete, the curriculum planners should consider dividing the component into smaller segments or find more efficient ways of communicating the content so that children do not become frustrated at having to work so long on a single component.

Table 17

AVERAGE NUMBER OF DAYS HEP STUDENTS TOOK TO COMPLETE SELECTED LANGUAGE SKILLS COMPONENTS

Program Description Code		Number of School Days Required for Completion								
		K			1			2		
		N.	M.	S.D.	N.	M.	S.D.	N.	M.	S.D.
1. Discriminate between large letters of the alphabet	YN1	51	4.2	4.7	12	5.3	5.8			
2. Discriminate between small letters of the alphabet	YN2	66	5.6	9.6	17	9.2	8.4			
3. Discriminate between words	YN3	63	12.3	16.2	26	11.3	12.4			
4. Name large letters of the alphabet	BL	49	39.2	32.7	34	22.6	27.3	6	10.3	8.3
5. Name small letters of the alphabet	SL	40	24.5	29.2	38	15.6	18.2	7	15.4	29.8
6. Name numbers 1 to 30	N1	37	37.7	35.5	37	31.7	31.5			
7. Read 30 words	RWC1	41	17.7	18.5	40	12.5	9.2	14	5.0	4.6
8. Read 30 new words after already learning 200	RWC7	12	10.0	11.1	33	10.4	10.8	18	7.3	9.4
9. Read 30 new words after already learning 400	RWC13				23	11.5	10.3	12	6.8	8.9
10. Read first 3 books	Ins. 1				29	30.9	24.4	20	28.9	27.4
11. Read 5 books after having read 8 books	Ins. 3				22	11.3	7.5	25	16.4	16.2
12. Read 5 books after having read 42 books	Ins. 10				5	3.0	1.4	21	5.7	4.6
13. Copy numbers 1 to 9	Bk. 1	33	37.6	33.0	43	22.4	20.7	11	5.8	6.1
14. Copy words accurately in cursive form	Bk. 4				32	20.8	19.3	29	18.3	19.7

Table 17 (continued)

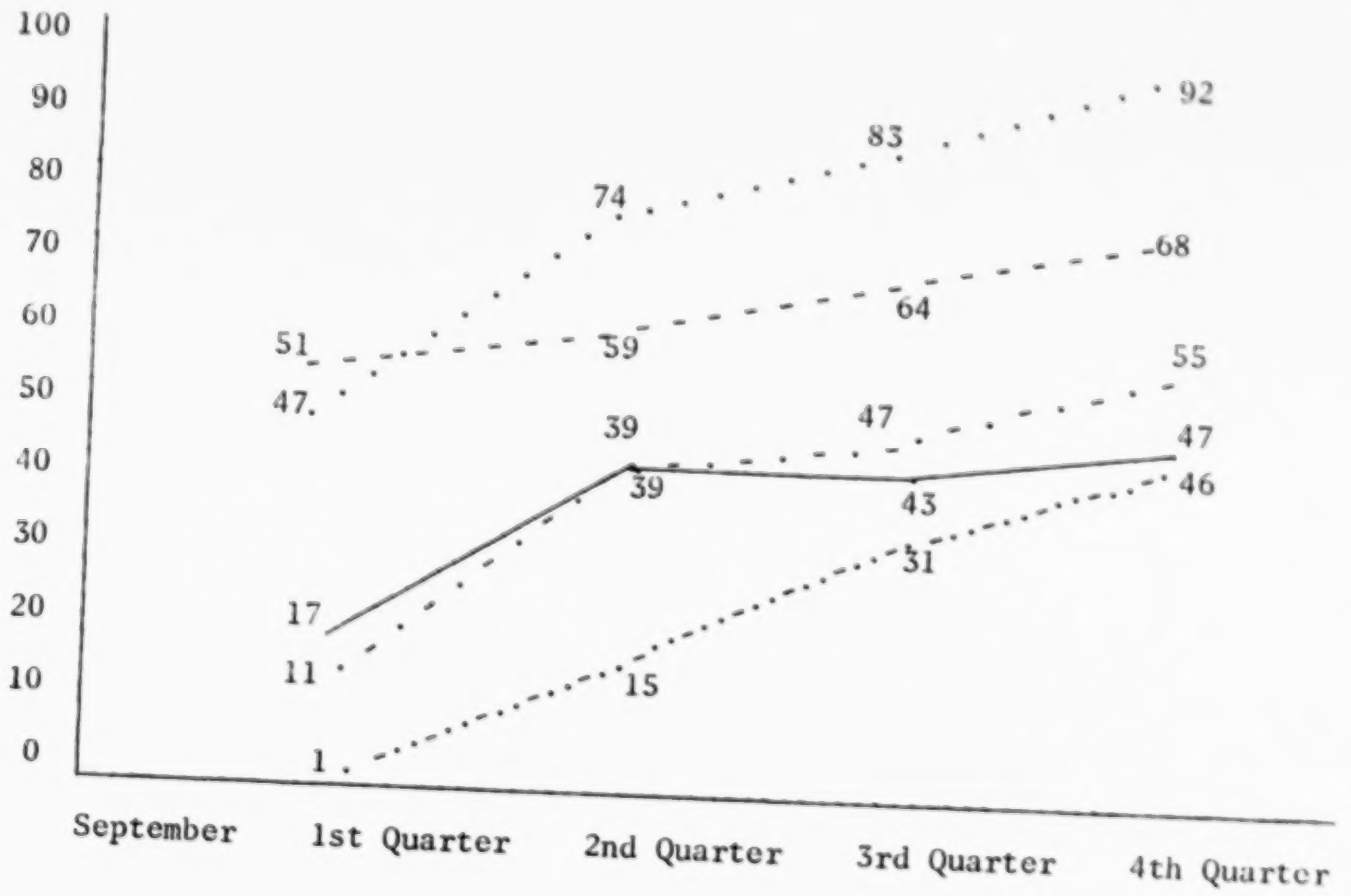
AVERAGE NUMBER OF DAYS HEP STUDENTS TOOK TO COMPLETE
SELECTED LANGUAGE SKILLS COMPONENTS

Program Description Code		Number of School Days Required for Completion								
		K			1			2		
		N.	M.	S.D.	N.	M.	S.D.	N.	M.	S.D.
15. Complete the typing of 52 units in the BL unit	T.B.L.	13	37.5	33.1	35	33.8	29.5	20	32.9	26.9
16. Complete a listening program in recognizing plurals	PL. L	30	24.7	30.4	30	16.8	27.3	17	9.5	23.8
17. Complete a speaking program in plurals	PL. S	30	15.0	22.8	30	9.3	24.5	23	1.4	1.9

Examples of student progress throughout the year are shown by the percentage of students completing selected reading components in Table 18. Similar data, gathered from the optical scanner sheets, is available in the evaluation office for selected components in the handwriting, listening/speaking, and typewriting areas.

Table 18

PERCENTAGE OF FIELD SCHOOL AND PILOT SCHOOL STUDENTS COMPLETING SELECTED READING COMPONENTS DURING EACH QUARTER OF THE SCHOOL YEAR



c. Self-Directed Learning Skills

Since the objectives of the Language Skills Subprogram emphasize self-directed learning skills as well as mastery of language skills, both types of data were collected. Eight self-directed learning behaviors were rated quarterly by teachers for each child in the program and recorded on the optical scanner sheet for computer processing. For each of the eight behaviors, teachers were directed to rate a child "1" if he seldom or never engaged in that behavior, "2" if he performed it sometimes, and "3" if he did it usually or always. Inter-judge reliabilities on these ratings are discussed in section III. C. 9.2 of this report.

Table 19 shows the amount of change in field- and pilot-school children, by grade level, on these eight behaviors from the first to the fourth quarter. Figures underlined indicate that the change in mean rating from the first to the fourth quarter was significant at the .05 level of confidence.

Table 19

PROGRESS MADE BY FIELD- AND PILOT- SCHOOL CHILDREN
IN EIGHT SELF-DIRECTED LEARNING BEHAVIORS

BEHAVIOR		FIELD SCHOOLS 1st Quarter	FIELD SCHOOLS 4th Quarter	PILOT SCHOOLS 1st Quarter	PILOT SCHOOLS 4th Quarter
1. Selects some of his own activities to work on	K	1.91	1.59	2.47	2.43
	1	2.31	2.11	2.49	2.28
	2	2.61	2.22	2.38	2.07
2. Follows through on his activities after he has selected them	K	2.11	1.70	2.26	2.34
	1	2.39	2.26	2.50	2.13
	2	2.70	2.29	2.04	2.38
3. Seeks help from the teacher or other students when he needs it	K	1.73	1.52	2.19	2.34
	1	2.01	1.96	2.56	2.38
	2	2.39	2.03	2.44	2.07
4. Goes from one activity to another without teacher direction	K	1.94	1.58	1.95	2.29
	1	2.16	2.03	2.29	2.48
	2	2.51	2.23	1.76	2.11
5. Works without disturbing others	K	1.62	1.45	2.23	2.37
	1	2.18	2.02	2.42	2.48
	2	2.42	2.10	2.22	2.20
6. Helps other children to learn	K	1.74	1.67	1.82	2.15
	1	2.46	2.37	2.23	2.32
	2	2.79	2.36	2.09	2.36
7. Marks his own progress in his record folder	K	1.67	2.05	1.78	2.40
	1	2.24	2.53	2.38	2.73
	2	2.59	2.77	2.64	2.60
8. Evaluates his own work during the language arts period	K	1.00	1.27	1.83	2.42
	1	2.76	1.70	2.27	2.59
	2	2.85	1.88	2.00	2.33

When all three grade levels were combined no significant gains were found in any of the eight behaviors for either field- or pilot-school children. This may be due to children's not actually having made noticeable progress in these areas, to a rating scale that was not sensitive enough to detect changes observed, or to a shift in teacher expectations over the year which caused them to raise their

standards for children by the end of the year. In the latter case the rating of "usually or always" was probably interpreted more strictly.

Next year this rating system will be replaced by more specific behaviorally stated objectives arranged in a hierarchy, and teachers will simply indicate if the behavior has been achieved.

2. Performance on the California Reading Test

In April 1970 all second-grade students in Hawaii took the California Reading Test in reading as part of the statewide minimal testing program. Since this test has been used in Hawaii for at least the past three years, it serves as one outside reference point for comparing changes in the field-school second-grader scores before and after the HEP program was introduced. Although the test is not a valid measure of the HEP curriculum since it is based upon curriculum assumptions and a definition of reading quite different from those in the HEP, scores on it have been found to correlate closely with the level of components children mastered in the HEP reading program.

In general a comparison of the vocabulary scores, comprehension scores, and total test scores from 1968 through 1970 indicate that students at Kalihi-Uka have gained two months in reading over their average for 1968 and 1969, while those in the four schools on Molokai have fallen from two to nine months behind the school averages for 1968 and 1969. The I.Q. scores for the same group of second graders on the California Test of Mental Maturity has changed only slightly over the three-year period except for Maunaloa, where it dropped from 95 to 84. Except for Maunaloa, where a drop in student reading performance would be expected due to a decrease in average I.Q. scores, other factors need to be considered to explain the drop in reading performance in the other three schools on Molokai. HEP curriculum planners and teachers in these three schools note two factors which may account for the lower reading scores. First, the amount of planner and resource teacher support provided the Molokai schools has been less than at Kalihi-Uka and less than was originally planned by the project. A second factor reported by some of the teachers in the Molokai schools is the temporary disruption caused by the recent shift from self-contained to three-on-two classroom organization. In some cases teachers who did not work well with each other were teamed together. One three-on-two teacher reported that the first semester had passed before the three teachers were working harmoniously. Undoubtedly other factors have also contributed to the decrease in reading test scores in the Molokai schools. Data comparing the California Reading Test scores by school over the past three years are contained in Table 20; comparisons on the California Test of Mental Maturity are shown in Table 21.

Table 20

COMPARISON OF 1970 SECOND-GRADE STUDENTS IN THE HEP WITH NON-HEP SECOND-GRADE STUDENTS IN 1968 AND 1969 IN FIELD SCHOOLS ON THE CALIFORNIA READING TEST

SCHOOL	Vocabulary Section 1968	1969	1970	Comprehension Section 1968	1969	1970	Total Test 1968	1969	1970	Number Students
Kalihi-Uka	2.6*	2.6	2.7	2.5	2.5	2.7	2.5	2.5	2.7	85
Maunaloa	3.1	3.2	2.1	3.1	2.9	1.7	3.1	3.1	2.0	26
Kualapuu	2.9	2.9	2.8	2.9	2.9	2.7	2.9	2.9	2.7	44
Kaunakakai	2.7	2.6	2.2	2.8	2.5	2.1	2.8	2.6	2.2	57
Kilohana	2.1	2.7	2.0	2.2	2.8	1.7	2.1	2.7	1.9	17

*In grade equivalents; national norm was 2.7, i.e., second year, seventh month.

Table 21

COMPARISON OF 1970 SECOND-GRADE STUDENTS IN THE HEP WITH NON-HEP SECOND-GRADE STUDENTS IN 1968 AND 1969 IN FIELD SCHOOLS ON THE CALIFORNIA TEST OF MENTAL MATURITY

SCHOOL	Language Factor 1968	1969	1970	Non-Language Factor 1968	1969	1970	Total 1968	1969	1970	Number of Students
Kalihi-Uka	91.4	89.8	91.4	94.2	94.7	95.5	92.1	91.3	92.8	113
Maunaloa	92.7	92.0	84.4	98.1	99.7	87.5	95.2	95.1	84.0	22
Kualapuu	97.4	97.3	99.5	101.9	103.1	102.5	99.4	100.2	101.4	45
Kaunakakai	93.9	91.5	90.1	98.4	94.1	96.9	95.5	91.6	92.9	60
Kilohana	88.5	90.4	85.7	93.7	97.8	94.5	89.9	92.7	89.2	13

3. Comparative Study of HEP and Non-HEP Students

a. Characteristics of the Field and Control Groups

As one evaluation strategy for the Language Skills Subprogram, a comparative study was conducted involving all second-grade children in a field school, Kalihi-Uka, and in a matched comparison school from the same district. The comparison school was selected to match the field school on four criteria: 1) reading scores of second-graders on the California Reading Test for 1968-69, 2) scores on the California Test of Mental Maturity for 1968-69, 3) number of second-graders, and 4) location in the same school district. Table 22 shows a comparison of the two groups for 1968-69, the year before the field

school had HEP participants at the second-grade level. The California Reading Test (CRT) scores are shown in grade equivalents and the California Test of Mental Maturity (CTMM) in I.Q. form.

Table 22

BACKGROUND DATA OF FIELD AND COMPARISON CLASSES IN 1968-69

School	CRT			CTMM			Number of Second Graders
	Vocab-ulary	Compre-nension	Total	Language	Non-Language	Total	
Control School	2.7	2.7	2.7	93	101	96	114
Field School	2.7	2.5	2.6	93	98	95	113

Children in the field school were distributed among eleven K-1-2 self-contained classrooms, all of which used the HEP Program. Children in the comparison school were distributed among five classrooms, three of them self-contained and two three-on-two's. Classes had first- and second-graders, second- and third-graders, or all second-graders. Teachers in each school completed a background questionnaire recording their years of teaching experience and their educational level. For the comparison school classes, teachers recorded the approximate number of minutes students spent per day on reading, writing, listening/speaking, and spelling. The backgrounds of teachers in the two schools were quite similar. Students in three comparison classes used the Ginn Basal Readers, those in another room the Harper-Row Series, and those in another the Read Series. Students in the individualized HEP program averaged about two hours a day in work on language skills. Students in the comparison classes averaged 60 minutes for reading and spelling, 30 minutes for handwriting, and 30 minutes for listening/speaking activities.

Each classroom in the comparison school was observed for ten minutes during the language arts period in May. During the observation time only two children appeared to be selecting their own activities in any of the five classes. Many children, however, worked independently without teacher supervision on the task assigned to the group.

During the timed observations, children in the comparison classrooms spent about the same amount of time in individual and group activity as those from the field school, but no pupil-pupil activities (such as peer tutoring) were observed. The percentage of student-minutes spent in total class activity in the comparison classes was 8 percent while in the field classes it was about 3 percent. The other way in which the comparison classes differed from the field classes was in

the percentage of student-minutes during which students were engaged in non-language arts activities. While the field school children spent about 20 percent of their time in activities unrelated to language arts comparison classes averaged only 7 percent in non-language arts activities. This difference was due largely to the freedom of choice allowed students in the HEP program, which exceeded that in the comparison classes.

A number of additional measures were used during 1969-70 to assess further the match between the field and comparison classes. These include: 1) children's mental age scores on the California Test of Mental Maturity (CTMM), 2) their chronological age, 3) the percentages of boys and girls, 4) the percentage of non-English speakers, 5) children's socioeconomic status as rated on Hollingshead's Two-Factor Scale of Social Status (with a range from a high of 11 to a low of 77), 6) the number of semesters children had been in their respective schools, and 7) the children's self-concept and motivation scores as measured on the Self-Concept and Motivation Inventory (SCAMIN). This inventory, developed by Farrah, Milchus, and Reitz at Michigan, consists of 24 statements read to the children who respond to each by marking one of five faces, ranging from very sad to very happy, to indicate their attitude toward that statement. For example, "What face would you wear when you think of going to school to learn of new ideas?" The inventory has items under motivation classified as goal and achievement needs, and failure-avoidance items. Self-concept is divided into role-expectations items and self-adequacy items. Scores for each subsection range from 6 to 30. Table 23 shows the mean and standard deviation on each of the baseline measures used. These data indicate that the two groups were very well matched in terms of I.Q., age, sex, percentage of non-English speaking students, socioeconomic level, length of time in the same school, and self-concept and motivation scores.

Table 23

BASELINE DATA ON HEP AND NON-HEP CLASSES FOR 1970

Measure Used	FIELD CLASSES Mean	Standard Deviation	Number Tested	COMPARISON CLASSES Mean	Standard Deviation	Number Tested
1. California Test of Mental Maturity						
a. Verbal Section	30.45	6.04	89	30.19	7.95	94
b. Non-Verbal Section	33.70	6.57	89	35.69	7.00	94
c. Total	64.17	11.02	89	66.07	13.61	94
2. Age in Months	93.40	5.10	89	92.67	5.14	94
3. Percentage of Boys	45		93	47		94
4. Percentage of Non-English Speaking Students	6		93	6		94
5. Socioeconomic Status	59.58	10.48	69	62.26	9.54	68
6. Number of Semesters in School	5.04	1.61	76	5.36	1.46	87
7. Self-Concept and Motivation Inventory (SCAMIN)						
a. Goal/Achievement Needs	26.94	3.53	82	26.63	3.14	84
b. Failure-Avoidance	23.66	3.58	82	23.89	3.82	84
c. Role-Expectations	22.66	3.50	82	23.80	3.46	84
d. Self-Adequacy	23.80	3.51	82	24.50	3.83	84

b. Output Measures and Procedures

As measures of success in language skills for both groups the California Reading Test (CRT) and five locally-developed measures were employed. The CRT, assessed by this evaluator as having little validity for the HEP program, was administered and scored by the Department of Education as part of the regular statewide minimal testing program for all second-grade students. The HEP reading curriculum developer, after examining the test booklet, identified Section A, Word Recognition, and Section C, Following Directions, as partially valid for the HEP curriculum. A hypothesis was proposed that field school classes would score higher on those sections and lower on the remaining three sections of the test. It was also

hypothesized that there would be a significantly lower correlation between CRT scores and I.Q. and SES for HEP children than for non-HEP children.

Performance measures were constructed to reflect HEP objectives without putting non-HEP students at a disadvantage. Criterion measures were sought for testing the children's ability to apply the knowledge and skills acquired. Measures were developed for oral reading, handwriting, listening ability, and self-directed learning.

The oral reading measure was administered to a random sample of second graders, stratified by classroom in each of the two schools. Children asked to read aloud to an evaluator the 40 words on the first two pages of the storybook In the Garden. The evaluator underlined on separate copies of the paragraph those words which each child omitted or read incorrectly, and the reading score was based upon the number of words read correctly. Dialect pronounciation was not considered an error. The evaluator who administered the test to approximately 30 sampled students in each school was a former foreign language teacher in Hawaii experienced in understanding dialect-speaking children.

The handwriting test contained five tasks resulting in five separate scores -- 1) copying manuscript, 2) copying cursive, 3) transcribing from manuscript to cursive, 4) dictation, and 5) spelling. The first task required that a child copy, on lines just below the original, an eight-word sentence printed in manuscript. The second task required the copying of a different eight-word sentence from cursive to cursive. The third task had a child copy in cursive an eight-word sentence written in manuscript. For the fourth task the test administrator read aloud the sentence "The wind blew his hat into a tree," had the child repeat it to be sure he had heard it correctly, and then repeated it slowly while the child wrote it on the test booklet. The eight-word sentence was scored first for legibility and secondly for proper spelling. Each of the first four scores was based upon the number of words in the sentence judged to be legible. The fifth score was based on the number of words spelled correctly in the sentence. The handwriting curriculum developer and three evaluation personnel scored five test booklets independently. Subscores were checked for interjudge reliability and the scores of the person assigned to score all booklets were compared with the mean of the other three judges. Of the 25 subscores there were only two where the scorer deviated by more than a point from the mean of the other three judges. These discrepancies were discussed with him and guidelines were clarified before he began to score each test booklet. Identification of the child's group was removed from sight and the papers for the two groups were randomly stacked before being scored so as to render an unbiased judgment.

Exercise 1 was hypothesized to favor the non-HEP child, who usually learns manuscript writing in first and second grades and then learns cursive writing. Exercises 2 and 3 were hypothesized to favor the HEP child, who often skips formal instruction in manuscript and begin with cursive. The last two exercises were considered equally fair for children in either curriculum.

The listening exercise consisted of a four-minute tape instructing the child to draw a certain kind of figure. The tape was stopped at specific points by the tester while the child performed the task described on the tape. There were ten points awarded, one for each part of the directions properly executed.

The fourth exercise was an attempt to measure indirectly a student's self-directedness. Two pages of arithmetic problems were prepared, ranging from single-digit addition to three-digit addition. Classes were told that an important study was being made of children's arithmetic performance and that their cooperation would be appreciated. The children were asked to complete all problems, were started on the first problem as an illustration, and asked to continue. The tester then told the class that she had to leave the room. The tester left the room for exactly two minutes, returned, asked the children to put down their pencils, and collected the papers. The papers were scored only for the number of problems attempted, not for correct answers. The hypothesis underlying this exercise was that children who have learned to become self-directed learners will be able to work independently on a task without an adult present in the classroom. It was recognized however that this was only one dimension of self-directed learning and that it ignored students' selection of their learning tasks.

The final measure developed locally was a measure of attitudes toward selected school activities. Nineteen statements were developed covering school and recreational activities. The tester read each statement aloud and the children blackened in one of five faces, ranging from a very sad to a very happy one, to reflect their own attitude toward that activity.

c. Findings

Student performance on the measures described in the preceding section is shown in Table 24. The last two columns show which group scored higher on each measure and the level of significance, as computed by a t test. The letters N.S. (which stand for "no significant difference") mean that the difference found is not significant from chance at the .05 level of confidence.

The only measure in which children in the HEP program performed significantly higher than non-HEP children was the self-directed learning task. On several other measures, such as the oral reading exercise, HEP children performed substantially higher than non-HEP children. However, the difference was not statistically significant because of the small number of children tested and the wide variation in children's performance within both groups.

Table 24

RESULTS OF THE COMPARATIVE STUDY OF SECOND-GRADE HEP AND NON-HEP CLASSES

Measure Used	FIELD SCHOOL Mean	Standard Deviation	Number Tested	COMPARISON SCHOOL Mean	Standard Deviation	Number Tested	OUTPUT DIFFERENCES Group Favored	Degree of Significance
1. California Reading Test (CRT)								
A. Word Recognition	13.55	4.01		12.49	4.26		HEP	N.S.
B. Meaning of Opposites	10.92	5.68		10.43	6.35		HEP	N.S.
A+B. Vocabulary Total	24.34	9.04		22.79	10.05		HEP	N.S.
C. Following Directions	6.18	3.64		6.68	4.19		non-HEP	N.S.
D. Reference Skills	5.70	2.77		5.64	3.19		HEP	N.S.
E. Interpretation of Materials	9.95	6.01		9.83	6.15		HEP	N.S.
C,D,E. Comprehension Total	20.55	11.12		20.13	23.26		HEP	N.S.
TOTAL CRT	44.65	19.28	85	42.28	22.68	94	HEP	N.S.
2. Number of days absent from school	9.21	8.36	76	9.95	10.15	94	non-HEP	N.S.
3. Self-directed learning task	23.01	5.82	82	17.04	7.01	83	HEP	.001
4. Oral reading exercise	33.04	8.29	27	28.71	11.31	31	HEP	N.S.
5. Writing exercise								
A. Copying manuscript	7.84	.45	32	7.91	.29	32	non-HEP	N.S.
B. Copying cursive	7.59	.76	32	6.28	1.94	32	HEP	N.S.
C. Transcription from manuscript to cursive	7.13	.94	32	6.66	1.88	32	HEP	N.S.
D. Dictation	5.69	2.02	32	5.66	2.44	32	HEP	N.S.
E. Spelling	4.97	2.04	32	5.16	2.40	32	non-HEP	N.S.
6. Listening exercise	5.63	1.36	32	5.06	1.52	33	HEP	N.S.

Scores of children in both groups on the California Reading Test were examined for their correlation with mental age and socioeconomic level. In Table 25, line AB shows that HEP students with a California Test of Mental Maturity (CTMM) score of 30 would very likely get a CRT score of 20. Line CD shows that among non-HEP students, only those who had CTMM scores of approximately 49 would obtain a CRT score of 20. In other words, HEP children with lower mental-age scores were achieving as well in reading as non-HEP children with higher mental-age levels.

The analysis of variance conducted on all students in both groups who had a raw score of 65 or lower on the California Test of Mental Maturity revealed that the HEP group scored significantly higher on the California Reading Test than the non-HEP group. When the mean score of 65 on the CTMM was used to divide the total HEP (N=67) and non-HEP (N=69) group into high and low I.Q. groups, there were 39 HEP students and 44 non-HEP students who scored 65 or below. The mean scores for the HEP and non-HEP groups were 38.95 and 26.30 respectively.

Performance of the HEP and non-HEP groups in reading was examined in relation to the children's socioeconomic status (SES) as shown in Table 26. The regression line AB for the HEP group was based upon a sample of 69 students; the regression line CD for the non-HEP group was based upon a sample of 67. The correlation between SES and CRT for the non-HEP group was .302 ($p < .05$); for the HEP group it was -.058 (N.S.). The difference between the two correlation coefficients was significant at the .05 level, the Z value being 2.11.

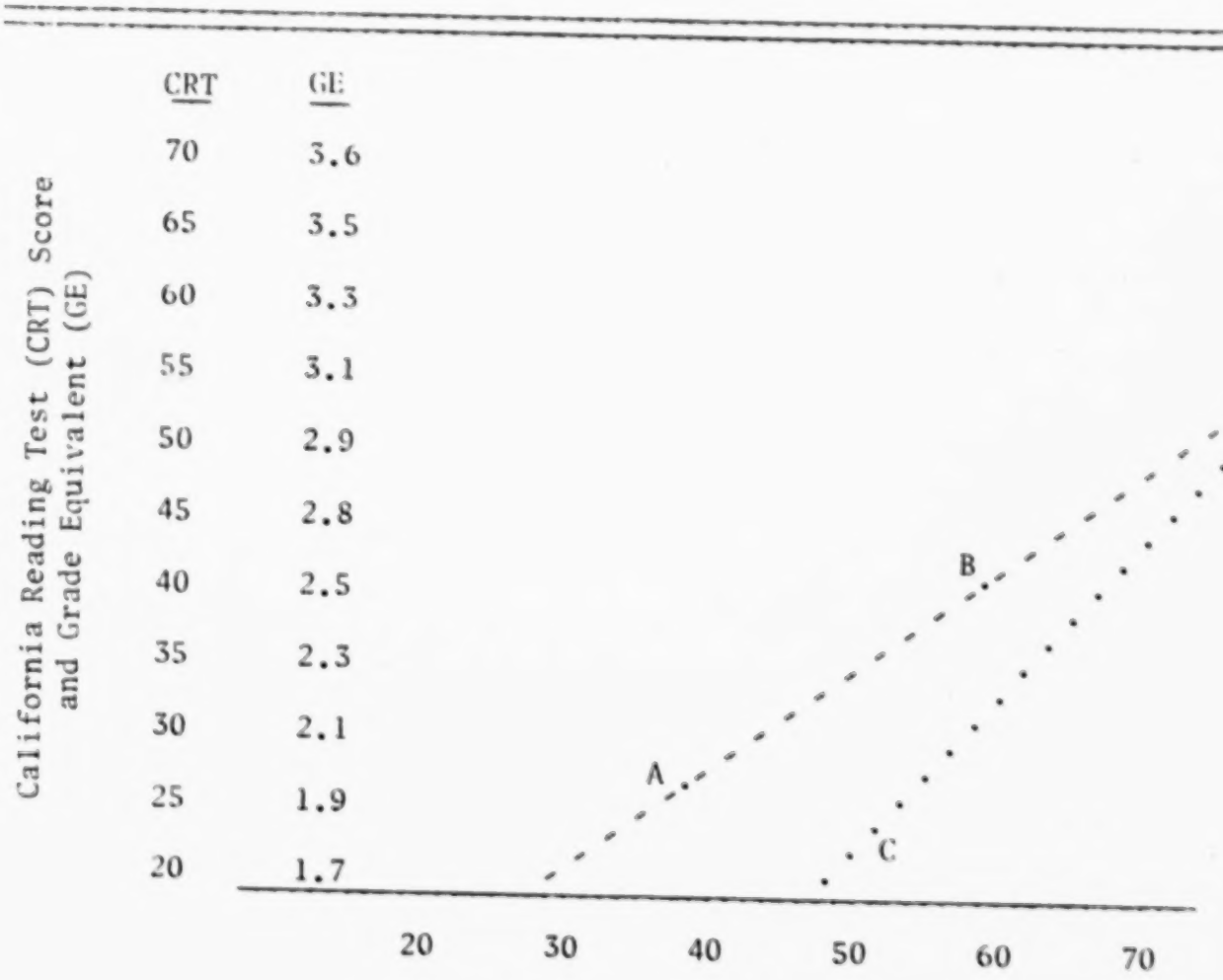
An analysis of variance was conducted on all students in both groups who received SES scores above the overall mean of 61. Since the SES scores from the Hollingshead formula are inverted, these students represent the lower socioeconomic half. There were 30 HEP students and 34 non-HEP students in this group. The respective means on the CRT were 47.9 and 35.8. The F value of 5.29 on the analysis of variance indicated that the mean difference was significant at the .05 level in favor of the HEP group.

The analysis of variance for the 39 HEP and 33 non-HEP children in the upper socioeconomic half showed respective means on the CRT of 42.8 and 50.5. The F value on the analysis of variance of 2.37 indicated that the mean difference was not significant at the .05 level.

Table 25

REGRESSION LINES FOR THE HEP AND NON-HEP GROUP OF SECOND-GRADE STUDENTS SHOWING THE RELATIONSHIP BETWEEN MENTAL AGE (CTMM) AND READING ACHIEVEMENT (CRT)

CRT	GE
70	3.6
65	3.5
60	3.3
55	3.1
50	2.9
45	2.8
40	2.5
35	2.3
30	2.1
25	1.9
20	1.7

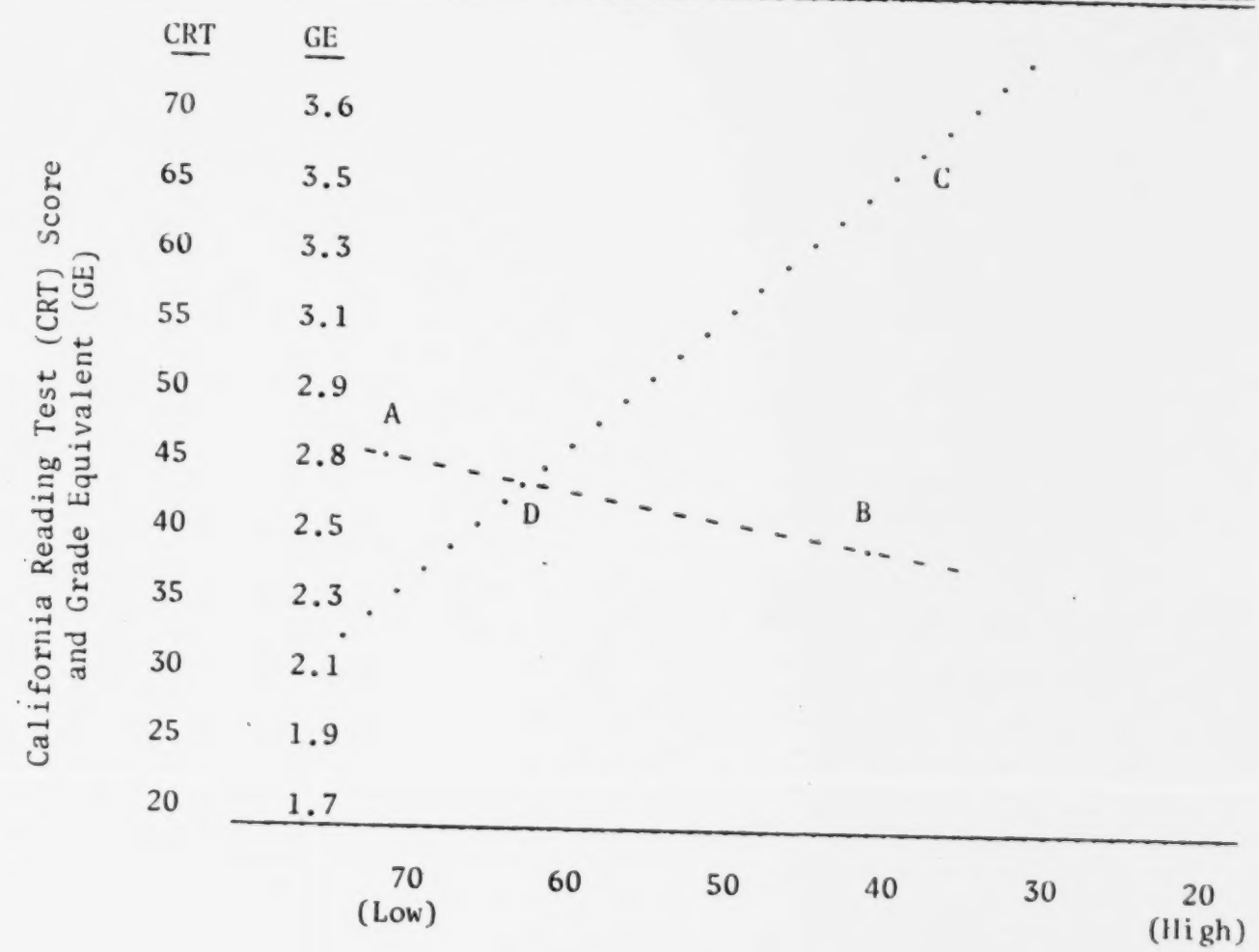


- - - HEP Group A = (40, 27.5) C = (50, 21.7)

···· Non-HEP Group B = (60, 42.3) D = (70, 47.5)

Table 26

REGRESSION LINES FOR THE HEP AND NON-HEP GROUP OF SECOND-GRADE STUDENTS SHOWING THE RELATIONSHIP BETWEEN SOCIOECONOMIC LEVEL (SES) AND READING ACHIEVEMENT (CRT)



d. Discussion

As was shown in the preceding section, the total HEP group scored slightly, but not significantly, higher than the non-HEP group on all subtests of the California Reading Test except "Following Directions." The findings did not substantiate the hypothesis that children in the HEP program would score higher than a comparison group on those CRT subtests judged by the HEP reading curriculum planner to have content validity and lower on those subtests considered to lack content validity. Several factors contributed to this. First, even those subtests judged to have content validity were only indirectly related to the HEP curriculum. Second, the mode of testing students was quite different. Children in the HEP program are tested on their oral reading performance while the CRT is a paper-and-pencil test. Third, curriculum influences outside of the HEP program influenced the children. For example, they received library training that was highly related to the "Reference Skills" subtest of CRT.

Since the needs assessment leading to the mounting of the Hawaii English Project stressed the need for a new language arts program that would help all children in the state, especially the disadvantaged ones, it was considered important to compare not only the total HEP and non-HEP groups but also the performance of disadvantaged students using both curricula. Therefore particular attention was given to the performance of children below average in mental age and socio-economic level. The HEP children in the lower half of the mental-age range and those in the lower half of the socioeconomic range performed significantly higher on the California Reading Test than their counterparts not in the HEP program. This indicates that disadvantaged students benefit more from the HEP program than from other reading programs. The lack of significant correlation only in the HEP group between reading achievement on the CRT and socioeconomic level is excellent evidence of the effectiveness of the program in advancing the goal of equal educational opportunity for all children regardless of socioeconomic background.

4. Attitudes and Perceptions

This section describes people's perceptions of the Language Skills Sub-program. Last year students, parents, and principals were systematically interviewed. However, because other kinds of evaluation had higher priority this year, no interviews were conducted. The perceptions here summarized came from participating classroom teachers, a principal, visitors to the project, outside specialists, and anecdotal accounts.

a. Teacher Questionnaire

During May, 1970, a questionnaire was mailed to all HEP Language Skills teachers soliciting their attitudes toward the program. A copy of the questionnaire is included in the Appendix. Responses were received from 78 of the 91 teachers. Many teachers chose the option of not signing the questionnaire. They were asked, however, to identify whether they were field- or pilot-school teachers and whether they taught self-contained or three-on-two classes so that their responses

could be analyzed by these subgroups. A computer program, TABLE, developed by Charles Yarbrough of the Survey Research Center at the University of California, was used for producing cross-tabulations.

Where there was a substantial difference between the perceptions of field-school and pilot-school teachers or between teachers in three-on-two classes and self-contained classes, their responses are shown separately. Questions 1 and 2 ask what aspects of the program teachers consider to be the most and least desirable. Question 3 attempted to assess the teachers' overall satisfaction or dissatisfaction with the program. The fact that 91 percent of them would choose to teach the Language Skills Subprogram rather than some other program is a good indication of the support it has among the teachers. Responses to question 4 indicate that experience with an individualized language arts program has some spin-off in the teachers' style of instruction in other subjects: 89 percent of them say that they are teaching other subject areas differently. The highest percentage of affirmative responses was in reply to the question whether teachers though special training was essential for teaching the program: 97 percent said "yes." Feedback at the end of the training institute last summer revealed that most teachers would have preferred less emphasis on the philosophy of the program and more help with its practical aspects. However, by the end of the school year 43 percent of the teachers recommended that the rationale or philosophy of the program be emphasized during training.

The remainder of the questionnaire measures the extent to which teachers agree or disagree with statements presented. Where field- and pilot-school teachers differed on their opinions, the pilot-school teachers tended to show a higher percentage of "strongly agree" statements. It appears that the field-school teachers were more reluctant to agree or disagree with certain statements. For example, while only 13.5 percent of the pilot-school teachers were uncertain whether "the program is reducing the need for student retention at the same grade level the following year," 41.2 percent of the field-school teachers were uncertain about it.

The fact that 93 percent of the teachers agreed or strongly agreed with the statement that "teachers in a new curriculum have a responsibility for providing data which may lead to revisions in the new materials" is sound evidence that they feel themselves to be an important part of the project. Their strong support for this statement was verified by their willing cooperation to feed back information to the curriculum planners and evaluators.

Questions 28 and 30 indicate that most teachers feel students are making greater progress in language skills and acquiring a more positive self-concept through the IIEP program than through other language arts programs. The only area where half of the teachers felt students had not shown greater progress in the IIEP program than

in other language arts programs is "working without disturbing others." This may be due to the freedom HEP children have to move from one activity to another and to work with one or more other children.

The actual questions and summarized responses to the teacher questionnaire are shown below:

TEACHER PROFESSIONAL INVENTORY

1. As a teacher who has had experience in using the Hawaii English Project's Language Skills Program, what do you consider to be the most desirable aspects of the Program?

Major Responses	%
1. Individualization	69
2. Availability and variety of materials	40
3. Self-direction	27
4. Student tutors	15
5. Highly structured and organized	11
6. Less teacher planning required	8
7. Chances for self-esteem greater	8
8. Card stacks	4

2. What do you consider to be the least desirable aspects of the Program?

Major Responses	%
1. Lack of reading readiness materials	18
2. Poor equipment and materials	18
3. Unsuitability for slow learners and immature children	17
4. Incorrect tutoring	16
5. Need some sort of phonics program	10
6. Too much individualization, difficulty working as a group	9
7. Too structured, doesn't allow freedom to implement or create	8
8. Poor distribution of materials	8

3. If you went to a new school that was going to use the HEP Language Skills Program in some classes and you were given a choice, would you choose to teach the HEP program?

Responses	%
Yes	91
No	9

Of the eight teachers responding "no," five were from field schools and three from pilot schools; two were from self-contained classrooms and six from three-on-two classes.

Major Responses	%
1. Individualized instruction	38
2. Availability and variety of materials	21
3. Likes program, adheres to personal philosophy of education	16
4. Previous training and familiarity (no extra preparation)	10
5. Highly structured and organized	9
6. Inflexibility of program	9
7. Most outstanding program thus far	6
8. Less teacher planning required	5

4. Since teaching the HCC Language Skills Program how do you teach the other subjects:

Fixed Responses	%
a. Exactly as you did before	11
b. Somewhat differently than before	66
c. Quite differently than you did before	23

If you selected b or c please describe the ways in which your teaching has changed.

Major Responses	%
1. Individualized instruction	69
2. Setting up smaller learning groups	13
3. More aware of and trying to meet individual needs of children	9
4. Utilizing various learning modes	8
5. More use of student tutors	5
6. More flexible objectives	5
7. Setting up interest and learning centers	4
8. Encouraging independence	3

5.a. Do you feel that it is essential for teachers to have received special training before initiating the HCC Language Skills Program in their classrooms?

Fixed Responses	%
Yes	97
No	3

b. If yes, what things should be emphasized in such a training program?

Major Responses	%
1. Practice and demonstration with materials	62
2. Philosophy of the program	43
3. First hand experience with children	18
4. Teacher role and attitude	14
5. Organization of classroom	13
6. Diagnosing programs	6
7. Record keeping	6
8. Goals and objectives	4

For the following questions, please indicate whether you STRONGLY DISAGREE, DISAGREE, AGREE, or STRONGLY AGREE with each of the following statements by placing a check in the appropriate box. If you are uncertain, check the third column.

	Percentage of responses					
	STRONGLY DISAGREE	DISAGREE	UNCERTAIN	AGREE	STRONGLY AGREE	
6. There is no particular age level when every child should begin to read.	1.1	2.3	1.1	49.4	47.1	
7. Having kindergarten and first grade students in the same room places additional limitations on the progress that can be made by the first graders.	34.1	36.5	12.9	9.4	7.1	
8. Kindergarten children should not work on language development activities for more than 20 minutes at a time.	27.9	46.5	10.5	10.5	4.7	
9. The HEP Language Skills program is reducing the need for student retention at the same grade level the following year.	2.9	2.9	41.2	47.1	5.9	Fld.
	0	3.8	13.5	63.5	19.2	Plt.
	1.2	3.5	24.4	57.0	14.0	Tot.

	Percentage of responses					
	STRONGLY DISAGREE	DISAGREE	UNCERTAIN	AGREE	STRONGLY AGREE	
10. Students who are given the opportunities to make responsible choices are likely to progress more rapidly in language skills development over a period of years than those who are not given choices.	0	15.2	24.2	54.5	6.1	Fld.
	1.9	1.9	13.5	55.8	26.9	Plt.
	1.2	7.1	17.6	55.3	18.8	Tot.
11. An older child generally benefits from tutoring a younger child.	2.3	16.1	17.2	51.7	12.6	
12. A child in kindergarten or first grade is too young to satisfactorily check another child.	21.2	49.4	14.1	8.2	7.1	
13. Teachers in a new curriculum have a responsibility for providing data which may lead to revisions in the new materials.	1.2	3.5	1.2	51.2	43.0	
14. The danger of mislearning is too great a risk when children teach each other.	13.8	50.6	20.7	11.5	3.4	
15. A 3-on-2 grouping is more suited to the HEP Language Skills program than is a self-contained classroom.	3.2	22.6	29.0	29.0	16.1	SC
	3.8	15.1	15.1	28.3	37.7	3/2
	3.5	17.4	20.9	29.1	29.1	T
16. A classroom grouping for the HEP Language Skills program which combines K, 1, 2 grade levels is covering too large a span of ages.	9.1	18.2	6.1	33.3	33.3	Fld.
	13.2	30.2	35.8	13.2	7.5	Plt.
	11.6	25.6	24.4	20.9	17.4	Tot.
17. Being asked to follow directions for use of the Language Skills program in field and pilot trials seriously limits the freedom of a teacher.	6.0	47.6	16.7	20.2	9.5	
18. Teaching the HEP Language Skills program requires less professional competence on the part of a teacher than teaching in a traditional program.	47.1	34.5	3.4	9.2	5.7	

	Percentage of responses					
	STRONGLY DISAGREE	DISAGREE	UNCERTAIN	AGREE	STRONGLY AGREE	
19. A typical first grade child should never be allowed to go for more than two days without engaging in at least one reading activity.	10.0	53.3	6.7	20.0	10.0	SC
	18.5	37.0	11.1	29.6	3.7	3/2
	15.3	42.4	9.4	27.1	5.9	Tot.
20. A child's performance should often be checked by anotner child rather then by the teacher.	8.0	55.2	10.3	21.8	4.6	
21. There is greater personal and professional satisfaction in teaching the HEP Language Skills program than other language programs.	12.1	15.2	39.4	21.2	12.1	Fld.
	0	11.5	25.0	42.3	21.2	Plt.
	4.7	12.9	30.6	34.1	17.6	Tot.
22. There is greater opportunity to know the children better as individuals in the HEP program than in other language programs.	4.6	12.6	17.2	41.4	24.1	
23. Children gain from the opportunity to select the order in which they take up their daily tasks.	0	12.1	9.1	63.6	15.2	Fld.
	0	1.9	0	71.7	26.4	Plt.
	0	5.8	3.5	68.6	22.1	Tot.
24. Kindergarten children benefit from the opportunity provided in the HEP program to learn to read if they are capable.	0	2.3	1.1	46.0	50.6	
25. Children in the HEP Language Skills program, as compared with children the same age in other language programs, have been able to get to know better other children in the classroom.	0	27.1	23.5	32.9	16.5	
26. Most of the children remember which programs they are working on in language skills.	0	4.7	1.2	72.1	22.1	
27. Gifted children have had the opportunity to progress at their own rate in the HEP program.	1.1	0	1.1	40.2	47.5	

	Percentage of responses					
	STRONGLY DISAGREE	DISAGREE	UNCERTAIN	AGREE	STRONGLY AGREE	
28. Children in the HEP Language Skills program, as compared with children the same age in other language programs, have developed a more positive self-concept and are less likely to consider themselves as learning failures.						
	0	24.2	30.3	33.3	12.1	Fld.
	0	3.8	21.2	48.1	26.9	Plt.
	0	11.8	24.7	42.4	21.2	Tot.
29. I feel more positive towards the HEP program after having taught it than when I first heard about it.						
	0	10.0	0	70.0	20.0	SC
	0	9.3	7.4	46.3	37.0	3/2
	0	9.4	4.7	55.3	30.6	Tot.
30. Children in the HEP Language Skills program that I have taught this year, as compared with children the same age not in the program whom I have taught or observed in the past, are more competent in:						
a. Operating classroom equipment	0	7.1	9.4	54.1	29.4	
b. Selecting their own activities to work on	0	10.8	8.4	57.8	22.9	
c. Following through on activities they have selected	0	27.2	8.6	46.9	17.3	
d. Seeking help from the teacher or other children when they need it						
	6.9	24.1	3.4	62.1	3.4	Fld.
	0	9.6	7.7	53.8	28.8	Plt.
	2.5	14.8	6.2	56.8	19.8	Tot.
e. Working without disturbing others	7.3	42.7	13.4	25.6	11.0	
f. Helping other children to learn	0	7.2	7.2	60.2	25.3	
g. Recording their own progress	0	6.0	1.2	65.5	27.4	
h. Evaluating their own work during the Language Arts period	0	7.3	3.7	68.3	20.7	
i. Communicating orally with their peers						
	6.3	21.9	31.3	37.5	3.1	Fld.
	0	17.3	11.5	48.1	23.1	Plt.
	2.4	19.0	19.0	44.0	15.5	Tot.
j. Writing cursively	3.7	8.5	6.1	48.8	32.9	
k. Undertaking new tasks	2.5	13.6	16.0	44.4	23.5	
l. Reading more						
	3.2	3.2	12.9	71.0	9.7	Fld.
	0	13.5	7.7	32.7	46.2	Plt.
	1.2	9.6	9.6	47.0	32.5	Tot.
m. Reading a wider variety of books	2.4	4.8	7.1	47.6	38.1	

b. Principal's Perceptions

The unsolicited testimony of an individual pilot-school principal whose letter is reproduced below is typical of the enthusiasm and support of the HEP shown by most principals of participating schools with whom the evaluator spoke during the year. The letter was sent by William Wall, principal of Shafter School, which services children of military personnel, to Shinkichi Shimabukuro, director of the Hawaii English Project, on July 23, 1970.

Dear Dr. Shimabukuro:

As you know, Shafter School is a pilot school for HEP materials. This year we had two K-2 three-on-two classes and three self-contained K-1 classes in the HEP program. The results were nothing short of tremendous.

To give you an example of this, the so-called behavior problems sent to me as being "immature" were cut in half among the kindergarten children in the self-contained K-1 classes this year. They were 75% less among the kindergarten children in the K-1-2 classes. This additional gain I attribute to the three-on-two team for the following reasons:

1. A third teacher in the room upgrades any particular teacher's handling of the class control;
2. Three heads are better than one in planning and executing a program;
3. The superb nature of the program itself.

Nevertheless, it is profoundly evident, whether in three-on-two or self-contained classes, there is at least a 50% improvement in the behavior problem area.

In the curriculum area of language arts, for the first time we had some kindergarteners reading in October. Normally we had less than 4 of the 90 of them reading a little by June. That is less than 5%. This year it was more than 20% and it happened long before June. I need not be a statistician to realize what a significant difference that is. Again, however, the three-on-two class did far better than the self-contained class. Next year I predict a 50% figure for kindergarten level readers in at least some of the classes.

May I note that we also piloted the 4-6 program this past year. Many of the children said that for the first time they liked writing. I can't say that I blame them, for I listened in to some of the lessons.

I know you didn't ask me but let me tell you what I think of the HEP. First of all, I just returned from a two-week NSF science institute where I presented a tape/slide program on HEP and answered questions. What interested me was the statements of principals and directors of curriculum from over 28 states. Such statements as "Kindergarten children cannot type", or "Kindergarten children cannot write cursive", and the like. My point is that while most of the conservative educators are still in the educational doldrums, we in Hawaii have a product of national scope and much originality. Hawaii can definitely show the way and is without doubt a national leader in elementary language arts, thanks to HEP.

The school owes some thanks to the HEP because:

Successful children are not behavior problems.
Unnecessary now to defend self against parents.
Children are allowed to go at their own pace.
Children are allowed to go at their own level.
Education is definitely on the move in Hawaii.
Students enjoy more suitable roles.
Sophistication is not a barrier in HEP programs.

The real proof of the pudding is in the tasting. The program has been tasted and tested and our teachers and students say, "U-u-m mmm good!"

Yours truly,

William J. Wall
Principal

c. Visitors

Over two thousand persons visited the schools participating in the Hawaii English Project during 1969-70. Over half of them were classroom teachers from other schools, many of whom were expecting to use the program in 1970-71. The number of visitors to the HEP schools this year is a good indication of the interest the program is generating around the state and nation. Although separate records were not kept for out-of-state visitors, it is estimated that there were at least thirty individuals or groups from the mainland who came to observe the program. Table 27 shows the numbers and categories of visitors recorded by each school. Data were not available for Molokai schools and University Laboratory School. The numbers include persons coming to observe any part of the program, including the Literature and Language Systems Subprogram.

Table 27

NUMBER AND CLASSIFICATION OF VISITORS TO THE SCHOOLS PARTICIPATING IN THE HEP PROGRAM

School	Teachers	Administrators	Parents	Legislators	Advisory Council & Bd. of Ed.	Others	Total Number of Visitors
Kalihi-Uka	529	35	5	18	1	12	600
Shafter	150	27	400	14	7	0	598
Puohala	179	61	2	18	0	0	260
Kapaa	65	20	23	10	0	62	180
Makaha	85	5	33	0	0	0	123
Kahului	62	7	6	4	0	12	91
Waiakea	28	5	0	1	1	20	55

A sample of visitors to each school were asked at the conclusion of their visit to complete a one-page, unsigned questionnaire and leave it at the school or mail it in a stamped, pre-addressed envelope to the HEP evaluation staff. A total of 294 questionnaires were returned and analyzed. The overall reaction of the visitors was overwhelmingly positive toward the program. Only 8 of the 294 responses were unfavorable. Table 28 presents a summary of responses to the five questions on the questionnaire.

Table 28

SUMMARY OF RESPONSES TO THE HEP VISITOR QUESTIONNAIRE

1. What is your overall impression of the Hawaii English Project?

Response	Frequency
Favorable	282
Fair	4
Unfavorable	8

2. In your opinion, what are the most desirable aspects of the English Project?

Response	Frequency
Individualization	127
Variety and availability of materials	117
Self-direction	37
Independence and freedom to choose materials	31
Sequencing of skills	26
Student tutors	26
Less teacher planning required	25
Structure and organization	24
New teacher role in guidance	21
Programmed materials	19
Fulfills and maintains interest	12
Constant involvement	10
Card stacks	8
Greater chances for success in learning	7
All aspects	6
Informal atmosphere	6
Immediate feedback and reinforcement for child	5
Cooperation	4
Diagnostic system for placing children in program	4
Decoding aspect	4
Other responses	47

Table 28 (continued)

SUMMARY OF RESPONSES TO THE HEP VISITOR QUESTIONNAIRE

3. In your opinion, what are the most undesirable aspects of the English Project?

Response	Frequency
None	34
Inadequate size staff	14
Incorrect tutoring practices, no guidelines for good tutoring	13
Cost of equipment and materials	13
Amount of record-keeping	12
Need for specialized and additional training	10
No provision for group interaction	10
Handwriting	8
Lack of creativity (in writing and speaking)	7
Wasted time spent in unconstructive activity	6
Difficulty in replacing materials and supplies	5
Combination of two grades	5
Not applicable to immature, slower learners	5
Lack of self-correcting materials	4
Large class size	4
Need for better organization (students need more guidance)	4
Length of learning period	4
Too structured, no other methods used	4
No assurance for proper use of materials	4
Other responses	83

4. What aspects of the program, if any, would you be interested in seeing initiated within your school or those in your community?

Response	Frequency
Entire program	145
Reading program	23
Handwriting program	21
Language arts usage program	15
Typing	14
Card stacks	12
Individualization	11
Taped stories	7
Language master	7
Arithmetic	6
Decoding materials	5
Songs program	6
Aural/Oral program	6
Other responses	35

Table 28 (continued)

SUMMARY OF RESPONSES TO THE HEP VISITOR QUESTIONNAIRE

5. Who or what caused you to visit this project?

Response	Frequency
Proposed implementation for next year	59
Individual interest	52
Principal's recommendation	51
Invitation (includes visits arranged by district offices)	37
Teacher recommendation	18
Curiosity	15
Possible involvement and interest in 3-on-2 program	15
Desire to implement HEP ideas in own classroom	6
Arrangement by social studies department	5
Consideration for follow-through project	5
Recommendation by Vice-Principal	5
Language Arts Committee	4
Favorable reports by others who visited it	4
College coordinator arranged for student teachers	4
Other responses	52

d. Anecdotal Reports

"Hard" data yield certain kinds of information about a program's effectiveness but give little insight into its affective outcomes. Certain matters -- the atmosphere in the classroom, the flow of the activities, the responses of the children -- come through better in personal anecdotal accounts. For this reason the following notes kept by Vivian Hee, the HEP resource teacher at Kalihi-Uka School, are reproduced here.

"One day one of our regular teachers was absent so I went into her classroom to help. Instead of physically helping right away, I sat back and took notes on what happens when a substitute takes over one of our classes. It was most interesting.

"The children were telling him exactly what to do. The morning routines went smoothly -- roll call, flag pledge, patriotic song, and then planning circle time. At this point the children told him where to sit, and explained that he was to ask them what they planned to do. Because he was confused as to procedure, the children dispersed themselves to different activities. By 8:45 all children were working on HEP materials.

"Checking over what was going on I noted four dyads using stacks, three children working on SRA workbooks, two on spelling, two on

typing, two on writing, two on reading, and three at the listening post. By 9:00 some children began changing activities but some were still working on their first choices.

"A count at 9:30 showed that most had changed activities, but were still doing language arts. Plurals, DM games, and reading aloud were going on, so the noise level was louder. They continued working until 10:00 which I thought was good for a first day with a substitute.

"The substitute was quite impressed that these young children were able to do their own work and take care of themselves. He said he learned a lot from them...

"Many teachers visiting our K-1-2 classes have remarked that the student behavior in our classrooms is somewhat different from that of other children. When asked to clarify that statement, I have received such answers as: 'They're enjoying school -- they seem to be helping each other,' or 'They're so relaxed,' or 'They seem to know exactly what they want to do and are doing it.'

"Some visitors have said that they watched particular children and have seen them go from one activity to another without teacher supervision. When I mention that one of our goals is to help the child be self-directed and responsible for his own choices, I inevitably get a reply that is what many educators say their goal is, but they have not seen it in action.

"Others have remarked that we don't have any 'discipline problems.' They're surprised to learn that we do have the average number of 'children with problems.' I explain that we keep all children in our K-1-2 classes, but because we have a variety of programs and varying modes, we have been able to reach children of wide and diverse interests. These programs plus the expert guidance of the teachers minimize these 'behavior problems.' In fact, some of these children are capable tutors.

"A principal came out of one of our classrooms shaking his head. 'Terrific programs,' he said. 'Imagine! That little kid knew more than I did. He asked me to help him but he ended up explaining everything to me, and corrected me when I made a mistake!'

"One day in late May I observed a K-1-2 class during their planning circle. It was truly a decision-making time. Each child was responsible for his own selection of his own learning.

"The children gathered around their teacher, who sat on a low chair. She asked: 'Have you thought of what you'd like to do this morning?' Hands went up, and as the teacher called each child by name, he chose his own program and left the group and started on his work. In a matter of minutes all children were working at various programs.

"I talked to the teacher for a while about the ease with which each child chose his tasks. She told me it was not so at the beginning of the year. At that time she helped some children to choose by narrowing their choices when they were overwhelmed by too much to choose from.

She encouraged children to name all the programs available in the classroom to remind them of what they could choose, and become familiar with what was in the room. Naturally her planning circles used to take more time, but each day they became more independent and were able to make responsible choices, until at this point they knew who were tutors for each program.

"By this time, some were changing programs so I talked to a few, asking them how they went about deciding what to do each morning. Herman, a second grader replied: 'I think by myself. I choose five things to do. On Mondays I do things that I don't like to do. On Tuesdays I do things that I like to do because there's visitors. Sometimes I work ten minutes and go to the next thing; some things like typing and reading I do longer because I want to finish the pages.' Another second grader, Lance, said that he knows what to do 'in my head.' He likes to choose what to do by himself and named some of his favorites -- reading, SRA workbooks, and typing."

d. Comments of Outside Experts

Among the experts who have visited and commented quite favorably on the Language Skills Subprogram are John Carroll, a psychologist from Educational Testing Services; Robert Labov, a linguist from Teachers College, Columbia University; Robert Glaser, Director of the Research and Development Center in Learning at the University of Pittsburgh; and Clarence Wadleigh, Associate Director of the Santa Clara County Supplementary Education Center in California.

Dr. Glaser, after reading the background materials on the project, observing the program at Kalihi-Uka, and speaking with the project administrators and curriculum developers, was interviewed by this writer in March 1970. When asked, "What was your overall impression of the Hawaii English Project Language Skills Program and its evaluation?" he replied: "I was quite excited about the project. It's very much in line with the current notions about individualizing instruction and is well designed from the point of view of setting up an individualized environment."

Glaser felt that the evaluation being conducted was effective both in measuring anticipated and unexpected program outcomes and in providing information for redesigning the program. He recommended that we try to identify those students who have achieved extremely well on this program and those who have not achieved as well and try to identify the characteristics of both groups so that we get some kind of feeling of whether or not the general environment that has been built for individualization might be even further differentiated for individuals in these two groups.

5. VISTA Study

During the months of March, April, and May, 1970, Roger Watson, the supervisor of VISTA workers attached to the HEP for the year, and two volunteers, Jack and Loraine Zitt, conducted a study of selected students who were judged by their teachers as gaining little or nothing from the

Language Skills Subprogram. This study was conducted independently of the HEP staff so as to provide an outside viewpoint. After doing a preliminary teacher-questionnaire study at Kalihi-Uka, the VISTAs went to Makaha Elementary School where there is a large proportion of disadvantaged students. (The parents of 33 percent of the children are on public welfare.) Their purposes were to identify the characteristics of children gaining little or nothing from the Language Skills Subprogram as compared with the characteristics of those gaining much and to make recommendations to the HEP staff based upon their findings.

A questionnaire was administered at Makaha to nine HEP teachers in three-on-two K-1 classrooms, three having self-contained K-1 classes, and one having a self-contained 1-2 class. Teachers were asked if they had K-1 students in their classrooms who were gaining little or nothing from the program and others who were gaining a great deal from it. Each teacher had both types of children and provided their names and some background information about them such as their sex and grade level, the number of months they had been in the program, the number of days they had been absent, and ratings of their performance on selected factors. Other background data on their home life and their progress with Language Skills components were obtained from the files.

Teachers identified a total of 69 students who they thought were gaining little or nothing from the program (hereafter referred to as low group), and 40 students who they felt were gaining a great deal from the program (hereafter referred to as high group).

An examination of Table 29 reveals many characteristics which significantly differentiate children gaining little from the program after the first six months from those gaining much. It is interesting that the teachers chose to list three-quarters more children in the low group than in the high group. This appears reasonable in view of the character of the school population, but it also reflects the values and expectations of the teachers. Although the number of kindergarten and first-grade children in the low group is about equal, it is significant that three-quarters of them are boys whereas fewer than half of the high group are boys. This findings seems consistent with other research on disadvantaged children.

Characteristics of the two groups are shown in Table 29.

Table 29

CHARACTERISTICS OF STUDENTS CONSIDERED BY THEIR TEACHERS AS HAVING GAINED LITTLE OR MUCH FROM THE HEP LANGUAGE SKILLS SUBPROGRAM

Characteristic	Low Group	High Group
Total number	69	40
Percentage of kindergarteners	54	31
Percentage of first graders	46	69
Percentage of boys	76	43
Percentage of girls	24	57
Average months in the program	6.1	6.8
Average days absent	13.0	6.6
Percentage thought to enjoy the program	34	95
Percentage whose fathers had a high school diploma	45	71
Percentage whose mothers had a high school diploma	35	71
Percentage with one-parent family	21	10
Percentage with parents together and father on public welfare	19	5
Percentage with mother alone and on social welfare	9	0
Percentage having read over 30 words by April	4	69
Percentage having read over 200 words by April	0	53
Performance ratings of each child by teachers on a scale of 1 (high) to 4 (low)		
a) Learning ability	3.4	1.9
b) Attention span	3.7	2.0
c) Motivation	3.8	1.7
d) Peer group acceptance	3.0	2.0
e) Performance in other school subjects	3.5	1.9

The high group has a better attendance record, a more stable family background, and a higher performance record in language skills and other school subjects. These factors help to validate the teachers' judgments in selecting children for these two groups.

For each child listed in the high or low group the teacher was asked to describe factors that contributed to the child's behavior. Table 30 lists the factors mentioned and their frequency.

Table 30

FACTORS DESCRIBED BY CLASSROOM TEACHERS AS CONTRIBUTING TO LOW OR HIGH STUDENT PERFORMANCE

Low Group		High Group	
Description	Times Mentioned	Description	Times Mentioned
Immature	26	Motivated	16
Irresponsible	20	Diligent	11
Playful-active	13	Initiative	9
Not motivated	12	Self-directed	8
Short attention span	11	Good working habits	7
Slow learner	10	Likes independence	7
Emotionally unstable	9	Self-disciplined	6
Poor peer relations	5	Works well alone	5
Lacks ambition	5	Parental interest	5
Sleepy/lazy	3	Good home	5
Quiet and shy	3	Enjoys books	4
Don't know	3	Enjoys life	3
Over-protective family	2	Good experience	3
Unconcerned family	2	Quick learner	2
Low oral language development	2	Successful decoding	2

Table 30 reveals characteristics frequently identified in other studies comparing advantaged and disadvantaged children. Interestingly, three times teachers reported that they did not know what factors contributed to the child's behavior. Other general labels like "immature" may also imply that the teachers are uncertain.

6. Correlational Studies

The comparative study of second-grade children in a field and a comparison school proved interesting not only as a way of comparing their mean performance on a number of measures but also as a way of determining correlations between variables within each of the two schools.

It was noted that in the comparison school there was a significantly higher correlation between a child's score on the California Reading Test (CRT) and his socioeconomic level (.30) or between his CRT score and his score on an I.Q. test (.77) than was found for the field school (.06 and .42 respectively). These findings indicate that the HEP program is giving culturally disadvantaged children a better opportunity for success in language skills. For both schools there was an extremely low correlation between CRT scores and the number of semesters a child was in school or the number of days he was absent. In both field and comparison schools, moderate correlations (.50 and .60 respectively) were found between CRT scores and scores on the self-directed learning task. High correlations

existed between CRT scores and scores on spelling or dictation exercises (.82 and .84 respectively). The correlation between CRT and sex was .32 in the field school in favor of girls and .07 in the comparison school in favor of girls. The HEP program reading levels of second-graders correlated .86 with their scores on the CRT total, which supports the hierarchy of objectives within the HEP reading area. Since the correlations between the HEP reading levels and sub-sections of the CRT for Vocabulary and Comprehension are also quite high, this would seem to answer any possible criticism that word attack skills and comprehension skills are not being adequately taught in the HEP Program. The oral reading test used also correlated highly with the CRT for both field and control groups, showing correlations of .80 and .83.

The self-directed learning measure used in this evaluation had the highest individual correlations with CRT (.56), attitude toward arithmetic (.44), California Test of Mental Maturity (.33), and the self-adequacy portion of the SCAMIN measure (.28). Since the self-directed learning measure involved arithmetic problems, a moderate correlation with attitude toward arithmetic was expected. The other correlations help to clarify the nature of what was being measured. The self-directed learning scores were the only variable with which the self-adequacy section of the SCAMIN correlated.

The internal reading level of children in the HEP, based upon the highest level component successfully completed, correlated at .86 with the CRT and at .73 with the oral reading scores. It correlated less with sex (.24) and mental age (.31) than did the CRT; its correlation with socioeconomic level was also low (.07). This indicates not only that success in the HEP reading program is less dependent upon children's uncontrollable background than it is in a traditional program, but also that it contains specific skills and is less related to a general intelligence factor. The low correlation between the HEP reading scores and the level of English proficiency (.12) indicates that the six percent of the Kalihi-Uka second-graders reported by their teachers to be non-English speakers performed as well as did Engish speakers in the HEP reading program.

Low correlations were observed between measures on the listening/speaking exercise and other variables. The same was true for the sub-measures under the writing area with the exception that spelling correlated highly (.82) with CRT and with the HEP reading levels (.79) while correlating scarcely at all with other parts of the handwriting test except for dictation, where the correlation was .97. This latter correlation was probably due to the fact that the same sentence was scored twice, once for legibility and once for correct spelling. Also the scorer was probably biased in interpreting misspelled words as illegible. Step-wise regression analysis, a technique used to derive multiple correlations, was performed on the major student output indicators but failed to reveal useful new information, since many dependent variables correlated highly with a single independent variable.

IV. LITERATURE SUBPROGRAM

IV. LITERATURE SUBPROGRAM

A. PROGRAM VARIABLES

1. Assumptions

The Hawaii English Project literature program treats literature as an art form and assumes that it can be taught as such. This means that the student's attention is directed to the ways in which content (the subject matter of a story, poem, or play) and form are brought together through the medium of language to express feelings, beliefs, and ideas. In a sense, therefore, literature in the Hawaii English Program is defined essentially by its medium of expression, which is language.

A second assumption that grows naturally from treating literature as an art form is that response to the work is central. To hear or to read a literary work involves an interplay between the work and the reader (or listener) which is mental, emotional, intellectual, sensory, and physical. Cognitive, affective, perceptual, and psychomotor processes are all involved in a complex interaction between reader and work.

The program also assumes that the student can be led to discover his response and what it was in the work that caused it, and to become increasingly articulate about what he has discovered. It assumes that the student can talk and write about his engagement with the work, his perception of it, his interpretation of it, and his judgment of it with growing sophistication. Literary study thus becomes an education in experiencing the effects of literature as fully as possible and of understanding the text and the ways by which it creates these effects.

2. Goals

The goals of the literature program are ambitious. To align literature with the arts is to hope that children will enjoy it and be moved by it. This is important because the development of human feeling is important. A second goal is that the student will perceive that literature has much of value for his own life because it shows people like him making choices and finding the consequences. It opens up for him the possibility of beliefs and worlds other than his own--it is, so to speak, simulated experience, a chance to try out the alternatives. For these ends the understanding of literature is fundamental, and it is for this reason that the program focuses on the processes and methods used by writers. To enable children to develop insight and judgment, the program offers many selections, studied in various ways, so that each child in his own way increases his grasp.

3. Rationale

The program of general education for the public schools of Hawaii justifies literature on the basis that through this study the student "comes to understand himself, his society, and the world around him." The Hawaii English Program adds another dimension to this rationale. In saying that literature should be studied as an art form, it moves to a position which considers the expression, the understanding, and the appreciation of ideas, feelings, and beliefs through the various arts to be as important for normal development as any other school study. An education in literature as an end in itself is seen as an education of the emotions and the imagination as well as of the intellect, and a vital part of every child's education from the very beginning.

4. Organization of the Curriculum

Three groups of activities in the program need special mention. The first is composition, written and oral. In taking the position that composition cannot be separated from content, the literature team made sure that composing in all forms is a carefully planned part of the program. Composition may be as small as captioning a drawing, or as large as describing a scene. It may be done verbally on the tape recorder; it may be written; and it may be done through arranging pictures and taking photographs. The goal of composition in the program is to help children become responsive to the experiences of others, and to develop order and fluency regarding their own.

The second group of activities concerns dramatic presentations. At the lower levels these may take the form of role-playing of characters from stories, acting out portions of a story to clarify understanding of it, and improvising from given situations in order to experience something of the creative process involved in making fiction. Creative drama is seen as having very specific contributions to make to the understanding of literature and to language development as well.

A third group includes creating activities in other media, such as painting, puppet-making, and sculpturing. These activies are not motivational or ends in themselves but are designed to implement the objectives of a lesson or to evaluate outcomes. They are intended to show the child in concrete ways the similarities and differences among the various art forms and to open up further avenues of response to a literary work.

Works for inclusion in the Literature Subprogram are selected from standard sources, from the lists of the classics in children's literature, and from existing works in world literature. In addition to books, the program uses film loops, tapes, natural objects, games, puzzles, and creative drama lessons to give the student a sense of added experience, an early encounter with oral literature, and a sense of discovery and of drama.

The materials of the curriculum are packaged into self-contained units by component groupings to provide the greatest degree of flexibility in the use of the materials. With the exception of a few films, all essential books and supportive materials are packaged in the component.

The structure of the program is contained in six "bands" roughly related to grade level. There is a consistent overlap and a broad range of difficulty and interest levels from band to band which should accommodate the range of differences typical of any grade span; but it was also intended that band cross-overs should occur whenever necessary. An advanced student at any level should have access to materials in the next band above, and vice versa.

The major divisions of each band are called "elements." The elements constitute a matrix in the sense that each one refers to an area of experience in every human being's life, and therefore has generated endless numbers of stories, poems, plays, and songs. Each element is subdivided into a number of "components." The component gives direction to the choice of books and the writing of lesson materials. The selections chosen for each component are arranged in "contexts." These are groupings of stories, poems, nonfiction pieces, songs, or pictures which will bring out a particular quality, characteristic, theme, or literary concept to be emphasized.

The works included in the curriculum are looked at from different perspectives. These perspectives are different frames of reference by which the various works may be approached, studied, and appraised, and they indicate how literary study develops. At the lower levels literature is almost entirely concerned with the content--what happens in a story or poem. More advanced understanding of literature recognizes that there is a great literary tradition. Finally, there is the perspective of style, which requires considerable grasp of many books and much of the tradition.

The various areas of literary study--characterization, plot, setting, structure, point of view, tone, language, and so on are kept in mind throughout but not forced into any unnatural sequence. Instead, they are returned to over and over again, each time with a more sophisticated work, so that each child will have an opportunity to grow in his understanding of literature.

B. EVALUATION DESIGN AND OUTCOMES

The Literature Subprogram (Band II, grades 2-4) was tested in 19 classrooms in eight schools in the eight districts throughout the state during the school year 1969-70. Teachers selected to teach the experimental materials arranged their own schedules and taught the program without special prior training. Instead, literature curriculum planners from the Hawaii English Project visited each of the schools monthly to train and support teachers and to observe and evaluate the materials as they were being taught.

Procedures for evaluating the effectiveness of the program were carried out from October through May. Tests were administered in all eight schools to assess student growth in the ability to respond to, understand, and enjoy literature. These instruments consisted of a pre-test, a mid-year test, a post-test, and a student literature inventory.

The pre-test was given before the classes began the HEP Literature Subprogram in October 1969. The experimental groups consisted of 660 students in grades two through four. A comparison group was made up of 42 second- and fourth-graders at Kalihi-Uka school.

The mid-year test was administered to a random experimental sample of 55 HEP students in grades two through four and a comparison group of 29 fourth-graders in January 1970.

The post-test was given in May 1970. The experimental group consisted of a random sample of 52 students in grades two through four. The comparison group consisted of 24 fourth-graders.

The inventory was administered to an experimental group of 573 students--95 in second grade, 208 in third grade, 256 in fourth grade, 14 in fifth grade--and to 25 fourth-graders in the comparison group.

The pre-, mid-, and post-tests were designed to measure the students' ability to understand and appreciate literature. Each test consisted of four items based on a story which was read to the students before the test. The items covered the theme, plot, structure, and characters of the story. The first part of each item required the students to choose one of three or four possible answers listed on the test paper. The second part of the item required them to explain why they chose the particular answer they did. Responses to the second part of each item were categorized according to literary relevance and assigned rank scores. Responses indicative of a good understanding of the story (e.g., comprehension of the main ideas, appreciation of the theme, or interrelationship in the structure of the story) were assigned a score of 3. Responses showing some understanding of the events or smaller patternings within the overall structure of the story were assigned a rank score of 2. Other responses were assigned a score of 1.

The student inventory was designed to discover whether the selections and activities appealed to the children and whether they found pleasure in literature. The test consisted of 34 titles of stories, seven titles of poems, nine items concerning classroom activities (e.g., discussion, creative drama, writing, drawing, games, reading), and 20 questions directly related to attitude toward literature (e.g., Would you like more time for literature?). The students were asked to rate the stories and poems, giving a rating of 3 to those they liked best, 2 to the ones they liked moderately, and 1 to those they liked least. They were asked to rate a story or poem X if they had not read or heard it or could not remember it. In the section on classroom activities, they were asked to indicate whether they would like to do more or less of each of the activities. In the section on attitudes they were asked to answer yes or no to the questions.

Data on the pre-test showed that students' ability to understand and appreciate literature was relatively stable across grade levels. Achievement on the mid-year test seemed to be lower than that on the pre-test. This may be due to the greater difficulty level of the mid-year test. As in the pre-test, the experimental group of fourth-graders did slightly better than the comparison group. Scores on the post-test showed the second-graders surprisingly scoring higher than the third- or fourth-grade students. The comparison students scored slightly higher than the project fourth-graders in the total

score. However, a closer examination of raw test scores revealed that the experimental group scored consistently higher on the first three items than the comparison group, although the margin was small, and the control group scored higher only on the fourth item. The mean and sample size of each group on the pre-, mid-, and post-tests are shown in Table 31.

Table 31

MEAN (M) AND SAMPLE SIZE (N) FOR LITERATURE PRE-, MID-, AND POST-TESTS IN TERMS OF RANK SCORES

Experimental (E) or Comparison (C) Group	Grade Level	Pre-Test M	Pre-Test N	Mid-year Test M	Mid-year Test N	Post-Test M	Post-Test N
E	2	1.90	112	1.38	8	1.70	10
E	3	2.02	258	1.76	25	1.62	24
E	4	2.10	290	1.72	22	1.54	18
C	4	1.92	27	1.69	29	1.68	24

Results on the student inventory revealed that most of the stories, poems, and activities offered in the literature program had great appeal to the children. Ratings for the items were extremely high for the majority of the students. That is, most children awarded far more 3's than 2's and 1's. Among second-graders the number of "best-liked" rankings on the individual story titles averaged 73 percent; it averaged 69 percent among third-graders, 59 percent among fourth-graders, and 63 percent among fifth-graders. Conversely, the average number of "least-liked" rankings of titles was only 10 percent among second-grade children, 11 percent in third grade, 13 percent in fourth grade, and 17 percent in fifth grade.

When it came to poems, the response was similar. "Best-liked" ratings of poems averaged 72 percent of all responses among second-graders, 63 percent among third-graders, 55 percent among fourth-graders, and 65 percent among fifth-graders. "Least-liked" ratings of individual poems averaged only 11 percent of the responses of second-graders, 15 percent of the responses of third- and fourth-graders, and 19 percent of the responses of fifth-graders.

In the classroom activities section of the inventory, the students' attitude was also shown to be positive. A large majority of the students indicated that they would like to do more of the activities (e.g., discussion, creative drama, writing, drawing, games). This included 70 percent of the second-grade students, 71 percent of the third-grade students, 66 percent of the fourth-grade students, and 53 percent of the fifth-grade students. The rest of the students said they would like to do less of the activities.

In the section directly concerning their attitudes toward literature, the trend was also positive. When percentages were averaged, over two-thirds of the students indicated that they liked to read, hear, write, and talk about stories and poems. This included 71 percent of the second- and third-grade students, 68 percent of the fourth-grade students, and 66 percent of the fifth-grade students. An examination of the individual items revealed that 60 percent of the second-grade students, 66 percent of the third-grade students and 68 percent of the fourth-grade students indicated that they liked folk tales, myths, and fairy tales better than stories about "real" people. The fifth-grade students as a group did not seem to have any preferences, the percentages being 50 and 50. The majority of the students (68 percent of the second-grade students, 76 percent of the third-grade students, 75 percent of the fourth-grade students, and 71 percent of the fifth-grade students) indicated that they understood a story better after doing it in creative drama. About two-thirds of the students (66 percent of the second-grade students, 71 percent of the third- and fourth-grade students and 69 percent of the fifth-grade students) said the decisions that characters made in the stories helped them to decide what they would do or say.

A comparison was made between the fourth-grade students in the experimental and comparison groups. The two groups were compared on relevant data obtained from the 12 items in the second part of the attitude section of the test. Results showed the two groups to be highly similar in their attitude toward literature. When percentages were averaged, it was found that 71 percent of the comparison group students (as compared with 73 percent of the fourth-grade students in the experimental group) responded yes to the various items, indicating that the comparison group as well as the experimental group had a positive attitude toward literature. An examination of the individual items showed that 76 percent of the control-group students indicated that they liked folk tales, myths, and fairy-tales better than stories about "real" people. Sixty-eight percent of the fourth-grade students in the experimental group said they liked folk tales, myths, and fairy tales better. It was also found that about 78 percent of the control-group students (as compared with 80 percent of the fourth-grade students in the experimental group) indicated that they liked to learn "names for things" in literature, like characters, setting, event, and climax. Sixty percent of the comparison group students said that they understood a story better after doing it in creative drama. Seventy-five percent of the students in the experimental group said creative drama helped them to understand stories better. Sixty percent of the comparison group students said the decisions that characters made in the stories helped them to decide what they would do or say. The experimental group had a higher percentage of 71. Ninety-six percent of the comparison group students said they would like more time for literature. This was higher than the 79 percent for the experimental group.

In summary, the results of the pre-, mid-, and post-tests did not reveal differences between the HEP and comparison groups. Data on the student inventory indicated that children in both groups had a definitely positive attitude toward literature. Where differences were found to exist, they did not seem to be consistent or significant.

The inconclusiveness of the findings may be interpreted in a number of ways. It may be concluded that children just "naturally" like stories and poems, that their likes are not much affected by school experiences, or that existing

school programs in literature are as effective as the HEP literature program in cultivating a taste for literature. However, since the impact of instructional programs is by nature cumulative, and since the evaluation covers only a rather brief span of exposure to the HEP literature program, it seems wiser to reserve judgments about its effectiveness until the HEP program has had a fair trial over a longer period of time.

In addition to assessing student outcomes, the evaluation was directed to obtaining feedback for revision purposes from the teachers using the program. In formal and informal ways critiques were sought of the lesson materials, the appropriateness of the selections and activities, and even of the more mechanical aspects of lesson format and unit packaging.

The majority of teachers in the program were apprehensive at the beginning of the year. The fact that most of them had not had extensive academic experience in the field of literature no doubt contributed to their trepidation and, aside from those teachers who had had some contact with the Nebraska Literature Curriculum, they were not accustomed to treating literature as an area of instruction within the language arts program. After using the HEP materials for some time, the teachers' attitude changed noticeably from apprehension to increasing confidence and enthusiasm. Evaluators noted that the teachers attributed their change of attitude to the specificity of the plans and to their own and their students' delight in the books and activities. It is significant that no teacher asked to drop out of the program after she had begun it, and that all teachers, without exception, expressed interest in continuing the program next year. Their chief concern seemed to be for students moving out of their classrooms who would be deprived of the literature program the ensuing year. Many teachers not initially involved in the program borrowed components for use in their own classrooms because of the enthusiasm shown by their colleagues and by children who had experienced them.

In addition to their informal observations shared with supervisors from the project, teachers were asked to record their more systematic observations on an evaluation form after completing each component. Planners asked for teachers' feedback on such matters as the appeal and suitability of the selections, the clarity and ease-of-handling of the format, the clarity and adequacy of the notes to the teachers, the fit between purposes and selections, the appropriateness and variety of the activities, and the nature of the students' responses. A cursory tallying of responses to these items showed that the trend was definitely positive. A complete compilation of the evaluations of each element will be made to guide the planners in the revision of Band II materials.

Teachers' negative comments were directed not to the program per se but to snags or lags in the delivery of materials--items missing or arriving late or in insufficient quantity.

The effort and dedication of the teachers in the program have been commendable and noteworthy. It is clear however that teachers need instruction in such matters as literary conventions and processes as reflected in literary works, methods of handling literature materials which are peculiar to the

nature of the subject, ways of fostering and assessing children's growth and development in literary skills and understanding, differences between teaching literature and teaching reading, the relationship of creative drama to the literature program, and the contribution of literature activities to the students' enjoyment and knowledge of literature.

V. LANGUAGE SYSTEMS SUBPROGRAM

V. LANGUAGE SYSTEMS SUBPROGRAM

A. PROGRAM VARIABLES

1. Rationale

The Language Systems Subprogram advances a justification for the teaching of language which can be defended (and must be defended) on purely humanistic grounds:

> The study of language is the study of that capability unique to man.
>
> The study of this capability offers the most promise of insights into the psychological and sociological nature and functions of the mind of man.

This claim, like others, is at present unsubstantiated. However, the study of language justified on humanistic grounds offers some relevant and promising links with larger social and cultural themes and concerns.

2. Assumptions

The Language Systems curriculum rests jointly on the discipline of linguistics and on the Brunerian view of learning. From the discipline of linguistics the planning team adopted the view which assumes that a speaker of a language has constructed a powerful theory of that language which, without his awareness of how it works or even that it exists, enables him to generate and understand an infinite number of sentences in his language. Such creativity presupposes that the theory must employ rules of great abstractness and generality. Since children seem to construct such a theory for whatever language community they happen to be born into in much the same manner and at much the same rate, it must be concluded that the capacity for this kind of theory construction is innate to the human species.

By the Brunerian view of learning is meant the assumption that each discipline is based on "organizing ideas" (such as bond in chemistry, set in mathematics, and abstract gramatical rules in linguistics). These ideas permeate the discipline: the beginner grasps them at a low level of generality in particular cases, while the practitioner sees them as structuring principles of the discipline. The curriculum thus addresses itself to the fundamental ideas of the discipline and deals with the questions that engage the practitioners.

3. Goals

The primary goal of the Language Systems Subprogram is not to make the student into a practitioner, but rather to have him learn something about himself. The second goal is to give the student factual information about language in general and English in particular which can make some claim to humanistic value. The third goal is to give the student some understanding of the discipline as the practitioners see it: its organization, theory of science, and actual practices. The fourth goal is to affect language arts skills.

4. Organization of the Curriculum

The Language Systems curriculum comprises three divisions: elementary, intermediate, and high school. Development of the latter two has been deferred, but an outline description is presented here to show the place of the elementary program in the total design.

In a general way the programs may be characterized as corresponding to the three stages of mental growth in Alfred North Whitehead's The Aims of Education. The elementary division, Perspectives in Communication, covering grades 4-6, is the stage of romance of the discipline: it deals with topics that are not formally considered central to linguistics, but which involve language in a way that is interesting to children. All of the topics bear essentially on the question: What are the key characteristics of language, and what are the important distinctions between language and other forms of communication? As the title implies, the fifteen units of this program are designed to give the elementary student "perspectives" on different communication modes and to provide a stimulating entry into the more formal study of language.

The intermediate division, Perspectives in Language, is the stage of precision. In this program the student encounters the central problems and concerns of the discipline of linguistics. The seventh-grade program connects the history of the language with the forces and processes that are now affecting the student's own language. The eighth-grade program brings out the student's intuitive knowledge of the theory of English by having him work out the restraints that occur in word construction and simple sentence construction. The ninth-grade program approaches the student's theory of English by exploiting the rules which allow sentences to be endlessly expanded. It concludes with a consideration of the innateness and universality of these rules. Twelve units to be covered in three semesters of the intermediate years have been planned; two have been tested.

The high school division, Perspectives in Language and Culture, represents the stage of generalization. In this program the student will be concerned with those areas of linguistics which overlap with other disciplines, such as psychology, anthropology, sociology, mathematics, and literature. Present thinking is that this program will be developed as a series of research-oriented, non-sequential semester courses, two of which the student would elect during his high school years.

B. EVALUATION DESIGN AND OUTCOMES

The primary purposes of the evaluation were to provide information helpful in revising the instructional materials and to assemble information about the children's performance and the attitudes of participating students and teachers.

The evaluators sought answers to the following questions in particular:

1. In what ways should the materials be changed?

2. Are the materials appropriate for students with high, average, and low IQs?

3. What are the learning outcomes for children in high and low SES and IQ groups?

4. How do the end-of-year scores for HEP and non-HEP children compare?

To get answers to these questions a variety of techniques and instruments were used.

To guide revisions of the materials there were teachers' evaluations dealing with the pacing of the units, their strong and weak points, and the attractiveness and teachability of the materials; some teachers also sent narrative reports to the planners at the end of the units. Each unit includes an "Evaluator's Guide for Daily Observations" which was completed by an observer from the school or from the HEP evaluation section. Students' judgments about the interest level and degree of difficulty of specific materials were collected via opinionnaires.

To get answers to the second and third questions the evaluators assembled and recorded socioeconomic status data, IQ scores, SCAT aptitude scores, and STEP reading scores for children in three schools: Makaha, Kalihi-Uka, and Waiakea. The scores on preview and review tests and on an end-of-year test were then examined in relation to the SES, IQ, SCAT, and STEP scores.

For comparison with non-HEP children, the end-of-year test was administered to a control class as well.

Each unit in the elementary curriculum is packaged in a self-contained kit. Each kit contains the following:

a. A teacher's manual which explains the elementary Language Systems curriculum in general and outlines the specific unit in detail.

b. Student handbooks containing dialogues, stories, poems, adaptations of technical articles, jokes, and cartoons. The teacher is free to assign parts or all of it for reading, or to use it as an information source.

c. Games including board games, paper and pencil games, and card games. The students are directed in inventing their own games as well.

d. A classroom research library which includes primary sources consisting of commercially produced books or pamphlets related to the subject, anthologies of materials, specially-prepared abridgments of technical articles, and reference texts.

e. Audio-visual materials such as bulletin board posters, cassette tapes, slides, records, filmstrips, super 8 film loops, and 16 mm movies.

f. Lesson plans which outline the structure of the unit and provide detailed commentary on each activity. Included in the plans are flow charts showing each week's activities at a glance. The charts also give approximate timing for each activity. The lesson plan cards state the cognitive theme of each day's work, outline daily objectives, specify materials needed, and describe each activity in detail.

g. Class contribution notebook, an empty binder into which the class can add items of interest it has collected or constructed. The planners feel they need these contributions to enrich the units with actual pupil products and to revise the units along lines of proven student interest.

h. Student workbooks containing exercises, puzzles, writing tasks, and suggestions for creative activities. The work sheets are cross-referenced to other elements--student handbooks, cassette tapes, etc.--within the unit. Each student has his own workbook. (In place of workbooks, some units have been provided with either spirit masters or stencil masters of the work sheets. Teachers then produce their own work sheets as needed.)

These materials were used about one hour a day during the study of a unit which lasted about four weeks. Four units--International Languages, Animal Communication, Advertising, and Social Uses of Language--were interspersed throughout the school year. Thus the Language Systems materials took up 16 weeks, or approximately half of the school year. During the remaining school months students studied the traditional language arts curriculum.

An analysis of preview and review exercises for two units (for 25 fourth-grade students for whom complete information was available on 18 variables) revealed that students changed their performance in a manner planners considered positive in the International Languages unit but showed no change or a change they considered non-positive in the Animal Communication unit. This latter may have been caused by confusion in recording of scores, tests that were inappropriate for the content of the unit, or to actual failure on the part of the students to master concepts within the unit. Since the content and scoring of the preview and review instruments were themselves being pilot tested this year, a follow-up study with revised instruments and procedures will be conducted. Students' post-test scores on the International Languages unit showed little correlation with their socioeconomic level (.25) or previous study of a foreign language (.33), moderate correlation with their STEP reading score (.47) and SCAT aptitude score (.54), and high correlation with their end-of-year score on the "Neptunian" test (.67).

Students' evaluations at the end of the year showed that the great majority of them liked the units. Of 294 students surveyed, 254 said they would like to study additional Language Systems units; 197 would have liked to spend a longer time on the unit they were just completing. On the pacing of the units, 176 thought it was "just right;" 71 thought the units were covered too rapidly, and 20 felt too much time was spent on them. When asked what sorts of groups they most liked to work with on the problems and projects in the units, 171 preferred small groups, 47 the whole class, 39 preferred working alone, and 5 liked working in pairs.

A poll of students' opinions of the component parts of the program showed that the workbook activities, the games, the printed materials, and the optional projects were the most highly favored. These findings were conveyed to the planners working on revisions of the units.

These results suggest that the curriculum is providing disadvantaged children with the same opportunities for success as it is providing advantaged children. The higher correlation with the end-of-year test supports the validity of the unit test.

During May, 131 fourth-grade project students and 20 comparison non-project students were given the two-page "Neptunian" test to determine student skill at applying linguistic principles to an invented language called Neptunian. Students were asked to make new words and new sentences by looking for patterns in examples provided. Since maximum data were desired on the experimental test itself, an item analysis and cluster task analysis were performed. In the first task students were given nine Neptunian words to translate into English by looking for clues in the examples provided. Project students averaged 5.4 words correct while non-project children averaged 4.9. The second section of the test asked children to create Neptunian words for eight English words provided. A maximum of twenty points could be awarded for the foreign appearance of words, correct word structure, and logical formation for opposites and plurals. The application of each criterion resulted in a separate, coded score. Project students scored slightly higher on each of these tasks and substantially higher on the formation of opposites than non-project children. Section three required the student to translate sentences from English to Neptunian and from Neptunian to English. Separate scores were tabulated for vocabulary, grammar, and word order. Project students did slightly better in these areas. Section four asked the student to list ways in which Neptunian was different from English in spelling, word-making, sentence-making and the like ways in which Neptunian was like English. Project students were better at spotting language differences but listed fewer language similarities. Section five asked students to list additional words in English that they felt would be useful when translated into Neptunian. Project students listed more words than did non-project students. When asked, "If you had more time how many Neptunian words do you think you could make up?" project children gave a lower estimate than non-project children. The final section consisted of a four-scale attitudinal question asking, "If you had a chance to study a possible language system of Martians would you like to?" Project students responded slightly more negatively than non-project students.

An analysis of variance was run on the total scores (which excluded the attitudinal sections). Project students scored 34.5 while non-project students scored 29.6. This difference was not statistically significant.

An analysis of the sub-score correlations indicated that the total test score correlated at greater than .70 with only the following sub-scores: word translation, word structure, correct formation of plurals, and sentence word order. The total score correlated only slightly with socioeconomic status (.26) and interest in further study of language (-.11), moderately with whether a child had studied a foreign language (.46), and rather highly with SCAT aptitude scores (.61) and STEP reading scores (.77).

In summary, on a language application test, project students scored slightly higher than a comparison group on content and slightly lower on attitudinal measures. The test had some sections that correlated only slightly with the total test score, indicating that this pilot instrument requires revision for the next stage of program testing. It is also anticipated that a greater number of students and a wider range of student abilities will be represented in the next evaluation sample.